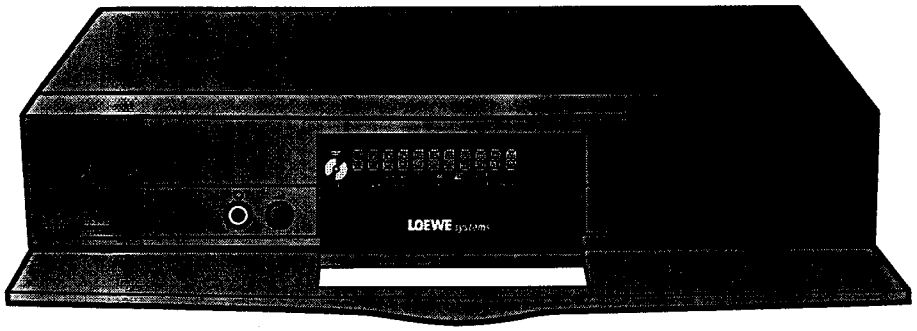
Service Manual

General Description
Adjustment Procedures
Block / Schematic Diagrams
Exploded Views / Parts List

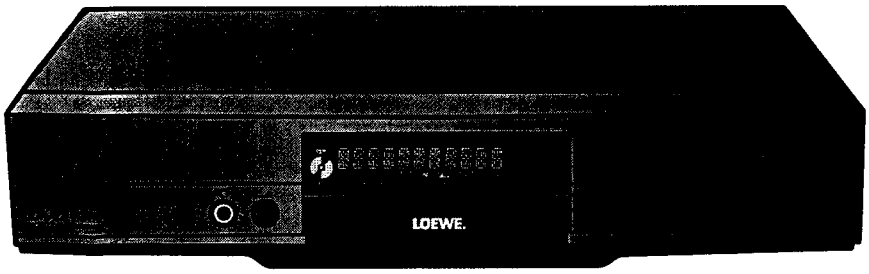
Digital Versatile Disc

DVD VIDEO

CLASS 1
LASER PRODUCT



LOEWE *systems*
DVD-Player
Auro
Art.-Nr. 59502



LOEWE.
DVD-Player
Xemix
Art.-Nr. 59501

LOEWE.

GB 230-90347.911

1. Technical specifications

1.1 General:

Mains voltage	: 230V (196 - 263V AC)
Mains frequency	: 50 Hz -60Hz
Power consumption	: 20W
Power consumption standby	: <10W (≤5W for low power standby; without P50)

1.2 Audio performance

Test equipment	: Audio Precision
Testdiscs	: CDDA: Philips audio signal testdisc 1
	: VCD: Philips A/V testdisc & ABEX A/V testdisc
	: DVD: Philips LVP09.00 audio testdisc

1.3 Line output

1.3.1 'Normal' mode (stereo)

Output voltage	:
2 channel mode	: 2Vrms +/- 1.5dB
5.1 channel Dolby	: 1.41 +/- 1.5 dB
Channel unbalance (1kHz)	: <0.85dB
Crosstalk	:
1kHz	: >105dB
20Hz-20kHz	: > 95dB
Frequency response	:
20Hz- 12kHz	: +/- 0.1dB max
Signal to noise ratio	: >100 dB
Dynamic range	:
1kHz	: >90dB
20Hz-20kHz	: >88dB
Distortion and noise	:
1kHz	: >90dB
20Hz-20kHz	: >80dB
Intermodulation distortion	: >87dB
Phase non linearity	: +/- 1° max.
Level non linearity	: +/- 0.5dB max.
Mute (spin-up, pause, access)	: >100dB
Outband attenuation	: > 50dB above 25kHz

1.3.2 'Center on' mode (mono)

Output voltage	: 2Vrms typ
Channel unbalance (1kHz	: <0.85dB
Crosstalk:	: mono
Frequency response(20Hz- 12kHz)	: 0.1dB max
Signal to noise ratio	: >85 dB
Dynamic range 20Hz-20kHz	: >85 dB
Distortion and noise 20Hz-20kHz	: >80 dB
Intermodulation distortion	: >87 dB
Phase non linearity	: not applicable
Level non linearity	: +/- 1 dB
Mute (spin-up, pause, access)	: >100dB
Outband attenuation	: > 50dB above 25kHz
Centerdelay adjusting	: 0-5 msec (steps 1 msec)

1.4 6-channel output

1.4.1 Front Line out(channel 1 and 2)

fully according to PQR class III

Output voltage	:
channel mode	: 1.41Vrms +/- 1.5dB
5.1 channel Dolby	: 1.41V +/- 1.5 dB
Channel unbalance (1kHz)	: <0.85dB
Crosstalk	:
1kHz	: >105dB
20Hz-20kHz	: > 95dB
Frequency response 20Hz- 12kHz	: +/- 0.1dB max
Signal to noise ratio	: >100 dB
Dynamic range	:
1kHz	: >90dB
20Hz-20kHz	: >88dB
Distortion and noise	:
1kHz	: >90dB
20Hz-20kHz	: >80dB
Intermodulation distortion	: >87dB
Phase non linearity	: +/- 1° max.
Level non linearity	: +/- 0.5dB max.
Mute (spin-up, pause, access)	: >100dB
Outband attenuation	: > 50dB above 25kHz

1.4.2 Surround channels (channel 3,4,5 and 6)

Surround channels are according to dolby group C products (*1)
Testequipment: audio precision (*2)
LFE + Center + Rear line out

Output voltage	:
2 channel mode	: muted
5.1 channel Dolby	: 1.41Vrms +/-1.5dB
	: Adjustable 0.7V-2.82 V
	: (+/- 6dB to front channels)
Channel unbalance	: <0.85 dB
Signal to noise ratio	: >100 dB (A-weighted)
Dynamic range	: >85 dB
Distortion and noise	: >80 dB (90 typical)
Crosstalk:	: >95 dB (*3)
*1	: referenced to dolby digital licensee information manual version 2.0
*2	: measured in normal mode and with balance control neutral
*3	: crosstalk from channels 1,3,5(channel 1 is ref) to 2,4,6(measured channels)

1.5 Headphone output

According PQR1 IMS
30mW at 32 Ohm load.
Headphone impedance: 8-2000 Ohm

1.6 Video performance

VCD testdisc	: Philips A/V disc & ABEX A/V disc

DVD testdisc : Philips MPTD PAL CVP0213 / Philips LVP10.00 video testdisc

1.6.1 CVBS

Fully according PQR3 IMS
Video output : 1Vpp(0.1V into 75 Ohm)

1.6.2 S-video (Y/C)

Fully according PQR3 IMS

1 - GND		⏚
2 - GND		⏚
3 - Y	1Vpp +/- 0.1V into 75 Ohm	
4 - C	burst 300mVpp +1/-4dB into 75 Ohm	

Aspect ratio switching by DC on C(pin4).
Connector type : 4 pin mini- DIN

1.7 Scart

Fully according PQR3 IMS
Connector implementation according EN50049-1; color = black; dual SCART
Fully according to prEN1057-2-1
Signal switching is P50 controlled; supported features of mode 3 see survey of applicable standards.

1.7.1 SCART II (connected to TV)

Pin signals:

1 - Audio R	1.8V RMS	⊖→
2 - Audio R		⊕
3 - Audio L	1.8V RMS	⊖→
4 - Audio	GND	⏚
5 - Blue/Chroma	GND	⏚
6 - Audio L		⊕
7 - Blue out/ Chroma in	0.7Vpp +/- 0.1V into 75 Ohm (*)	⊖→
8 - Function switch	<2V = TV >4.5V / <7V = asp. ratio 16:9 DVD >9.5V / <12V = asp. ratio 4:3 DVD	⊖→
9 - Green	GND	⏚
10- Nc		
11- Green	0.7Vpp +/- 0.1V into 75 Ohm (*)	⊖→
12- Nc		
13- Red/Chroma	GND	⏚
14- Fast switch	GND	⏚
15- Red out/ Chroma out	0.7Vpp +/- 0.1V into 75 Ohm (*) +/- 3dB 0.3Vpp in case of Chroma	⊖→
16- Fast switch RGB/ CVBS	or Y <0.4V into 75 Ohm = CVBS >1V / <3V into 75 Ohm = RGB	⊖→
17- Y/CVBS	GND	⏚
18- Fast switching	GND	⏚
19- CVBS/Y/RGB sync	1Vpp +/- 0.1V into 75 Ohm (*)	⊖→
20- CVBS/Y		⊕
21- Shield		⏚

1.7.2 SCART I (connected to AUX)

Pin signals:

1 - Audio R	1.8V RMS	⊖→
2 - Audio R		⊕
3 - Audio L	1.8V RMS	⊖→
4 - Audio GND		⏚
5 - Blue/Chroma	GND	⏚
6 - Audio L		⊕
7 - Blue in/ Chroma out	+/- 3dB 0.3vpp Chroma (burst)	⊕
8 - Function switch		⊕
9 - Green	GND	⏚
10- P50 Control		
11- Green		⊕
12- Nc		
13- Red/Chroma	GND	⏚
14- Fast switch	GND	⏚
15- Red in/ Chroma in		⊕
16- Fast switch RGB/ CVBS or Y		⊕
17- CVBS	GND	⏚
18- Fast switching	GND	⏚
19- CVBS/Y/RGB sync	1Vpp +/- 0.1V into 75 Ohm (*)	⊖→
20- CVBS/Y		⊕
21- Shield		⏚

(*) for 100% white

1.8 Digital output

1.8.1 Coaxial

CDDA/ LPCM (incl MPEG1) : According IEC958
MPEG2, AC3 audio : According IEC1937
Remark:
DTS audio output mode is only available on "digital out"

1.8.2 Optical

Identical to coaxial

1.9 Dimensions and weight

Place and height of feet	: acc. to Loewe Harmonisation line
Apparatus tray closed	: WxDxH:435 x 315x 75/88
Apparatus tray open	: WxDxH:435 x 442 x 75/88
Weight without packaging	: ca. 4 Kg
Weight in packaging	: ca. 6 Kg

1.10 Laser output power & wavelength

1.10.1 DVD

Output power : 7mW
Wavelength : 650nm

1.10.2 CD

Output power : 10mW
Wavelength : 785nm

Service Modes DVD-Player

Um diverse Test-Modes ausführen zu können, müssen jeweils folgende Tastenkombinationen am Gerät **gleichzeitig** gedrückt und **dabei** der **Netzstecker eingesteckt** werden. Um einen Test zu Beenden, oder wenn ein Test beendet ist: **Netzstecker ziehen!**	To perform diverse modes at the DVD-Player press the following kombinations of the buttons and concurrently plug in main-power. To stop the test Pull off the main-power.

Xemix 5006DD / Auro 9006DD

Dealer Script: <OPEN/CLOSE> + <PAUSE>

Testet den I2C-Bus zum RGB Videoprozessor
Checks I2C-Bus to Display PCB
Monoboard
AV-Board
alle Speicher/all memorys

DSW
Diagnostic Software: <OPEN/CLOSE> + <STOP>
Siehe Service Manuel

Virgin Mode: <OPEN/CLOSE> + <PLAY>
(Auslieferungszustand)

Trade Mode: <OPEN/CLOSE> + <PREVIOUS>
(keine Bedienung am Gerät möglich)
(no handling at the Player itself possible)

Xemix 5106DO / Xemix 9106DD

Dealer Script: <OPEN/CLOSE> + <PLAY>

Testet den I2C-Bus zum RGB Videoprozessor
Checks I2C-Bus to Display PCB
Monoboard
AV-Board
alle Speicher/all memorys

DSW
Diagnostic Software: <OPEN/CLOSE> + <STOP>
Siehe Service Manuel

Virgin Mode: <OPEN/CLOSE> + <NEXT>
(Auslieferungszustand)

Trade Mode: <PLAY> + <NEXT>
(keine Bedienung am Gerät möglich)
(no handling at the Player itself possible)

2. Warnings and Laser safety instructions

(GB) **WARNING**

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

ESD

(NL) **WAARSCHUWING**

Alle IC's en vele andere halfgeleiders zijn gevoelig voor elektrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(F) **ATTENTION**

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise a leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller a ce que les composants ainsi que les outils que l'on utilise soient également a ce potentiel.

(D) **WARNUNG**

Alle IC und viele andere Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD).
Unsorgfältige Behandlung bei der Reparatur kann die Lebensdauer drastisch vermindern.
Sorgen sie dafür, das Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.
Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

(I) **AVVERTIMENTO**

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevita potrebbe essere fortemente ridatta in caso di non osservazione della piu grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

(GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten.
Der Originalzustand des Gerats darf nicht verandert werden.
Fur Reparaturen sind Original-Ersatzteile zu verwenden.

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt terug gebracht en dat onderdelen, identiek aan de gespecifieerde worden toegepast.

(I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambiago idetici a quelli specificati.

(F)

Les normes de sécurité exigent que l'appareil soit remis a l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

SHOCK, FIRE HAZARD SERVICE TEST:

CAUTION: After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins (with unit NOT connected to AC mains and its Power switch ON), and the face or Front Panel of product and controls and chassis bottom,
Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before return to user/customer.
Ref.UL Standard NO.1492.

NOTE ON SAFETY:

Symbol ⚠: Fire or electrical shock hazard. Only original parts should be used to replace any part with symbol ⚠
Any other component substitution(other than original type), may increase risk or fire or electrical shock hazard.

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne."

LASER SAFETY

This unit employs a laser. Only a qualified service person should remove the cover or attempt to service this device, due to possible eye injury.

LASER DEVICE UNIT

Type:	SemiconductorlaserGaAlAs
Wave length:	650 nm (DVD) 780 nm (VCD/CD)
Output Power:	7 mW (DVD) 10 mW (VCD/CD)
Beam divergence:	60 degree

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURE OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

AVOID DIRECT EXPOSURE TO BEAM

WARNING

The use of optical instruments with this product will increase eye hazard.
Repair handling should take place as much as possible with a disc loaded inside the player

WARNING LOCATION: INSIDE ON LASER COVERSHIELD

CAUTION VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING UNDGÅ UDSÆTTELSE FOR STRÅLING
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN
VARNING SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD BETRAKTA EJ STRÅLEN
VARO! AVATT AESSA OLET ALTTIINA NÄKYVÄLLE JA NÄKYMÄTTÖMÄLLE LASER SÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN
VORSICHT SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETZEN
DANGER VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID DIRECT EXPOSURE TO BEAM
ATTENTION RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE EXPOSITION DANGEREUSE AU FAISCEAU

Warning for powersupply on position 1005

The primary side of the powersupply including the heatsink carries live mains voltage when the player is connected to the mains even when the player is swiched off !
This primary area is not shielded so it is possible to touch copper tracks and/or components when servicing the player. Service personnel have to take precautions to prevent touching this area or components in this area .
The primary side of the powersupply has been indicated with a lightning stroke and a stripe-marked printed on the printed wiring board

Note:
The screws on the basic Engine (position 82 in on the exploded view drawing) may never be touched removed or re-adjusted.
Handle the Basic engine with care when the unit has to be exchanged!
The mechanism of the basic engine is very sensative for droping or shocks

3. Service hints

The DVD module(Basic Engine and the mono board) has to be exchanged completely in case of failure. A new module for Xemix can be ordered with codenumber 291-90350.969 for Region Code 4 (Australia), 291-90350.970 for Region Code 5 (Russia), and 291-90350.968 for all European countries Region Code 2. A new module for Auro can be ordered with codenumber 291-90350.988 for Region Code 4 (Australia), 291-90350.989 for Region Code 5 (Russia),and 291-90350.987 for all European countries Region Code 2.

Return the defective unit complete assembled in original package to Loewe Consumer Service in Kronach.

6. DIAGNOSTIC SOFTWARE : SCRIPT INTERFACES

6.1 DEALER SCRIPT

6.1.1 Purpose of Dealer Script

The dealer script can give a diagnosis on a standalone DVD player; no other equipment is needed to perform a number of hardware tests to check if the DVD player is faulty. The diagnosis is simply a "error" or "pass" message; no indication is given of faulty hardware modules. Only tests within the scope of the diagnostic software will be executed hence only faults within this scope can be detected.

6.1.2 Contents of Dealer Script

The dealer script executes all diagnostic nuclei that do not need any user interaction and are meaningful on a standalone DVD player.
The nuclei called in the dealer script are the following (the number after each nucleus name corresponds with the number being on the local display when the nucleus is executed during the dealer script):

Nucleus		Description
VideoColSetupComm	9	Checks the I2C interface with the RGB video processor on the Audio/Video board (only for DVD players with RGB video processor).
VideoScartSwComm	8	Checks the I2C interface with the scart switch on the Audio/Video board
PapChksFl	7	Calculate and verify checksum of FLASH memory.
PapDramWrR	6	Pattern test of all locations in the DRAM(s).
PapI2cDisp	5	Checks the I2C interface with the slave processor on the display PCB.
PapS2bEcho	4	Checks the I2C interface to the basic engine.
PapI2cNvram	3	Checks the I2C interface with the NVRAM.
PapNvramWrR	2	Pattern test of all locations in the NVRAM
CompSdramWrR	1	Pattern test of all locations in the SDRAM(s).

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Figure 6-1

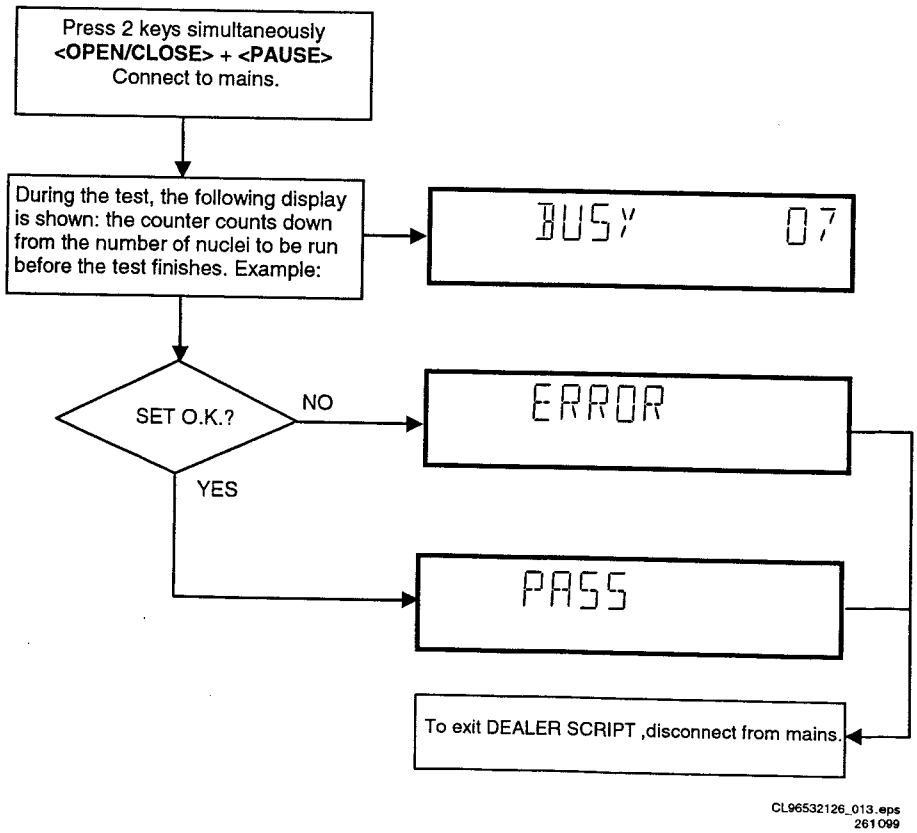
Press 2 keys simultaneously
<OPEN/CLOSE> + <PAUSE>
Connect to mains.
During the test, the following display is shown: the counter counts down from the number of nuclei to be run before the test finishes. Example:
BUSY 07
SET O.K.?
NO
ERROR
YES
PASS
To exit DEALER SCRIPT ,disconnect from mains.

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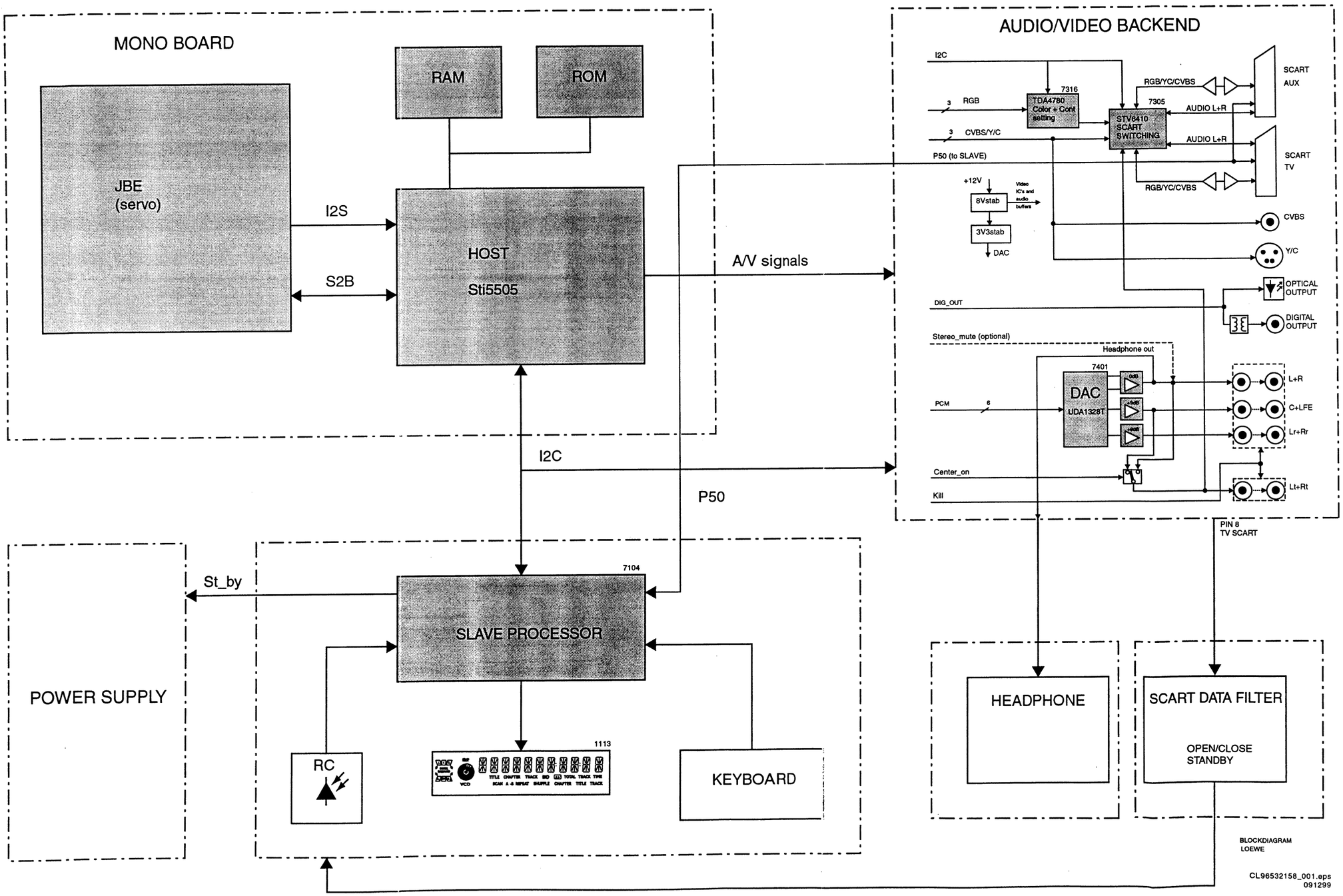
Figure 6-2

4. Block and wiringdiagram, dismantling, exploded view and oscillograms

Blockdiagram



Dismantling instructions

DISMANTLING INSTRUCTIONS

See exploded view for item numbers

Cover 151
⇒ Remove 7 screws
174→177 at sides
171→173 at rearside
⇒ Lift cover at rearside to remove

mounting
↑
↓
demounting

Front assy 1
⇒ remove 2 screws 75→ 76 (front 1 →frame 181)
⇒ unlock front from frame by releasing successively 3 snaps(on the left, in the middle and on the right)
⇒ put front assy in front of the set(service position)

Display board 1002
⇒ Remove 7 screws 27 → 33(board→ front), pay attention to earth spring 24.
⇒ demount board

Headphone board 1003
⇒ Remove volume knob by pulling it forward
⇒ remove 2 screws 34→35(board →front)
⇒ demount board

Standby board 1003
⇒ Remove 2 screws 25 → 26(board→ front)
⇒ demount board

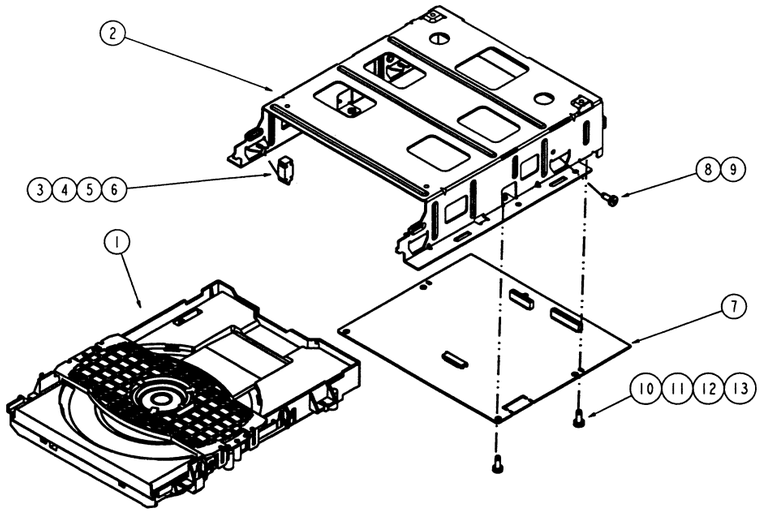
DVD MODULE 82
⇒ Remove connections to Mono board
⇒ remove 4 screws 200→ 203(loader bracket 2 → frame 181)
⇒ demount module

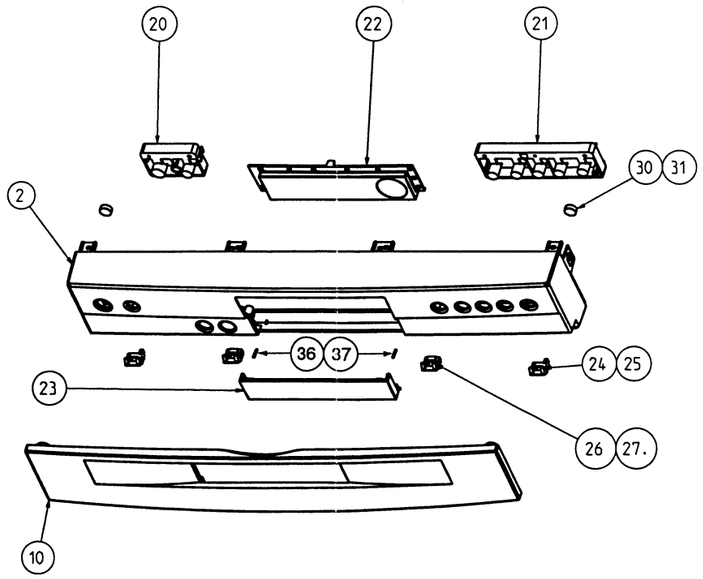
DVD MONO Board 7
⇒ See also exploded view of DVD module
⇒ Remove flex connections to turntabel motor and sledge motor.
⇒ remove 4 screws 10 → 13(mono board 7 → loader bracket 2)
⇒ remove carefully flex connection to OPU and wire connection to tray motor.
⇒ demount board.

LOADER VAL3000 1
⇒ Remove 2 screws 8, 9
⇒ Remove 4 suspensions 3 → 6 from loader bracket

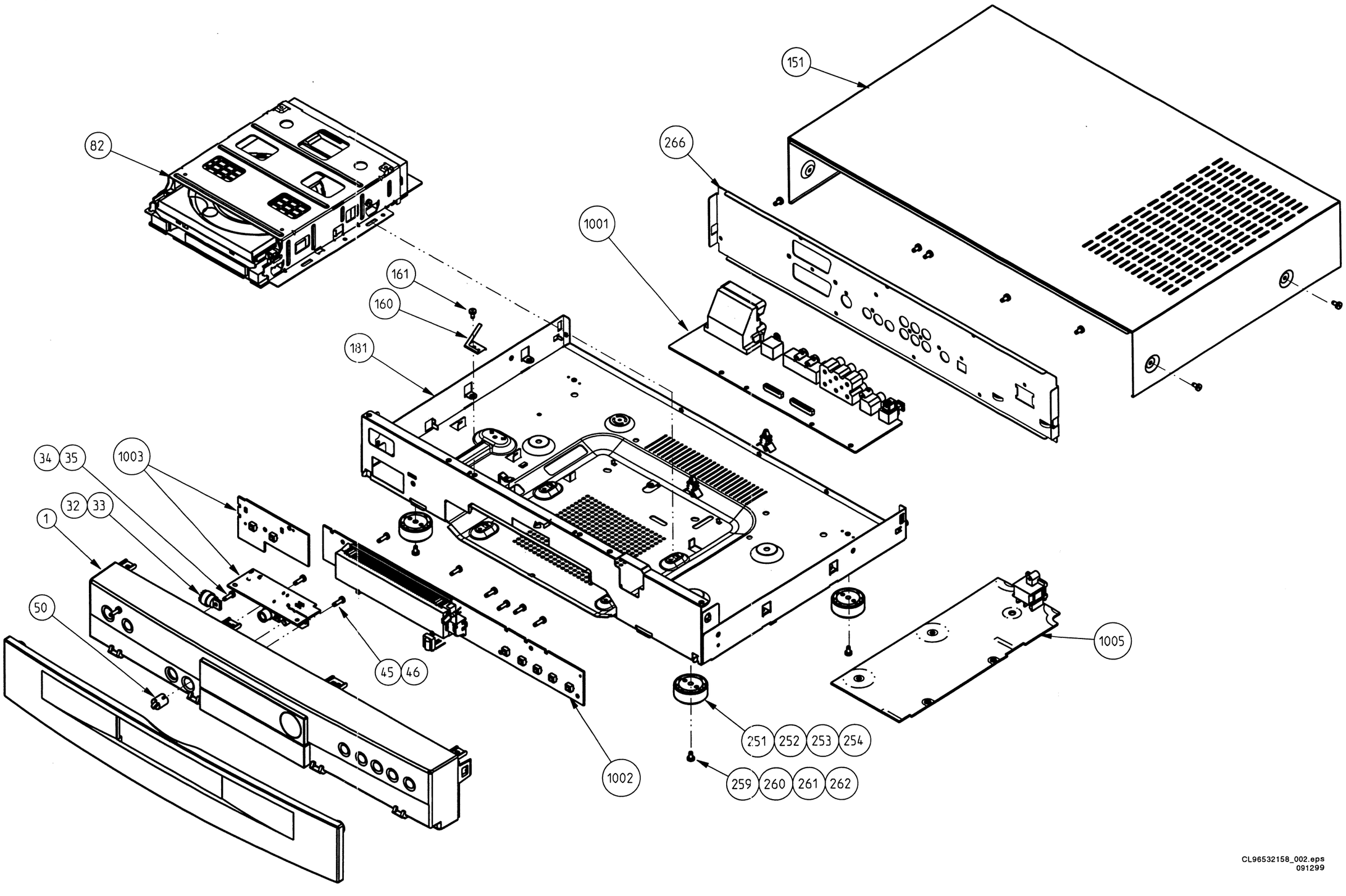
A/V board 1001
⇒ remove flex connections to Mono board
⇒ remove 1 screw 268 (scart→backplate 266)
⇒ remove 2 screws 271 and 274 (cinches→backplate)
⇒ remove 2 screws 272 and 273 (digital and optical out)
⇒ release snaps of 2 spacers 208 and 209 (board → frame)
⇒ demount board

Power supply unit 1005
⇒ remove connections
⇒ remove 2 screws 204 and 215 (board→frame)
⇒ remove screw 276 (mains inlet→backplate)
⇒ release snaps of spacers 206 and 207 (board→frame)
⇒ demount board





Exploded view



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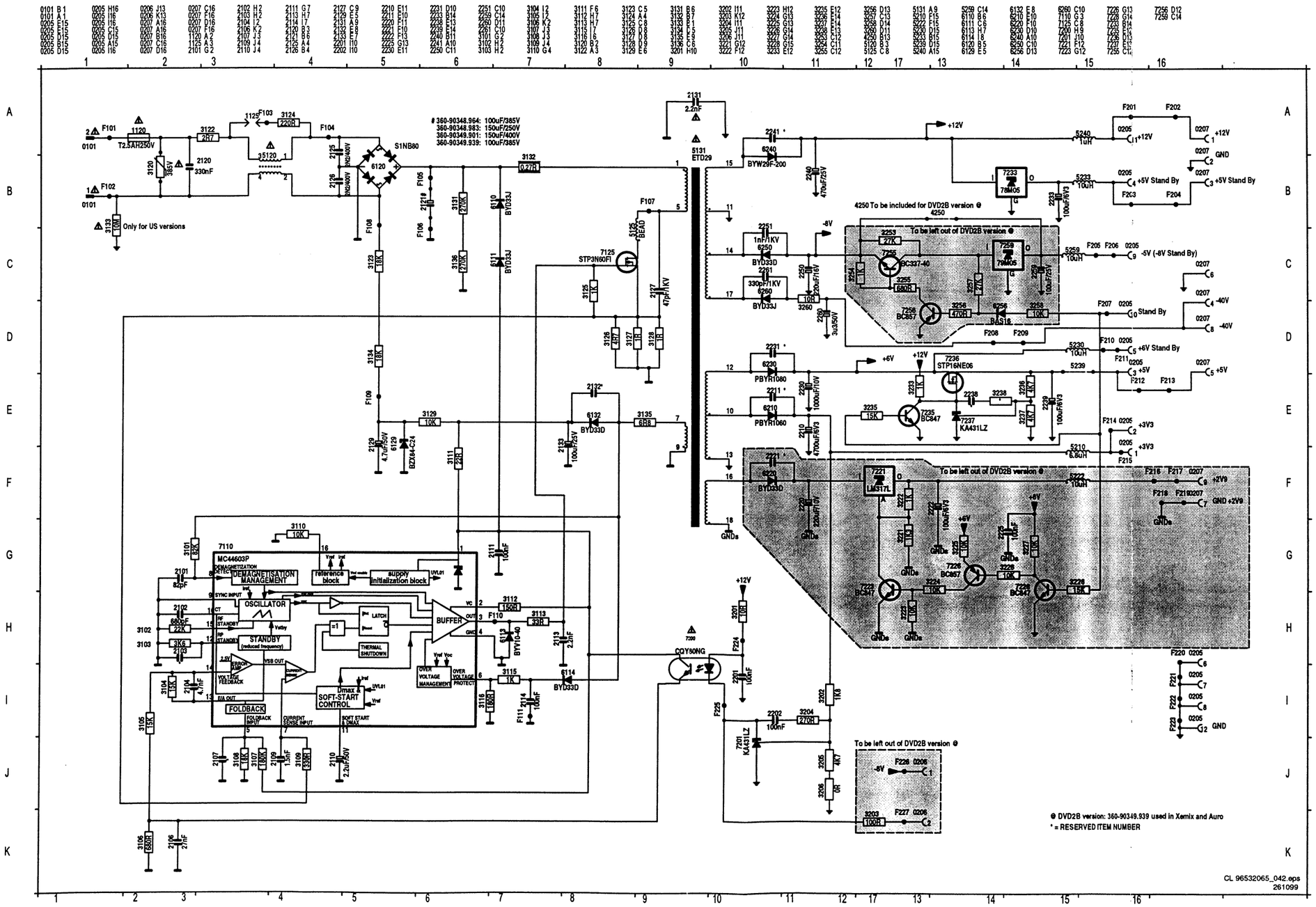
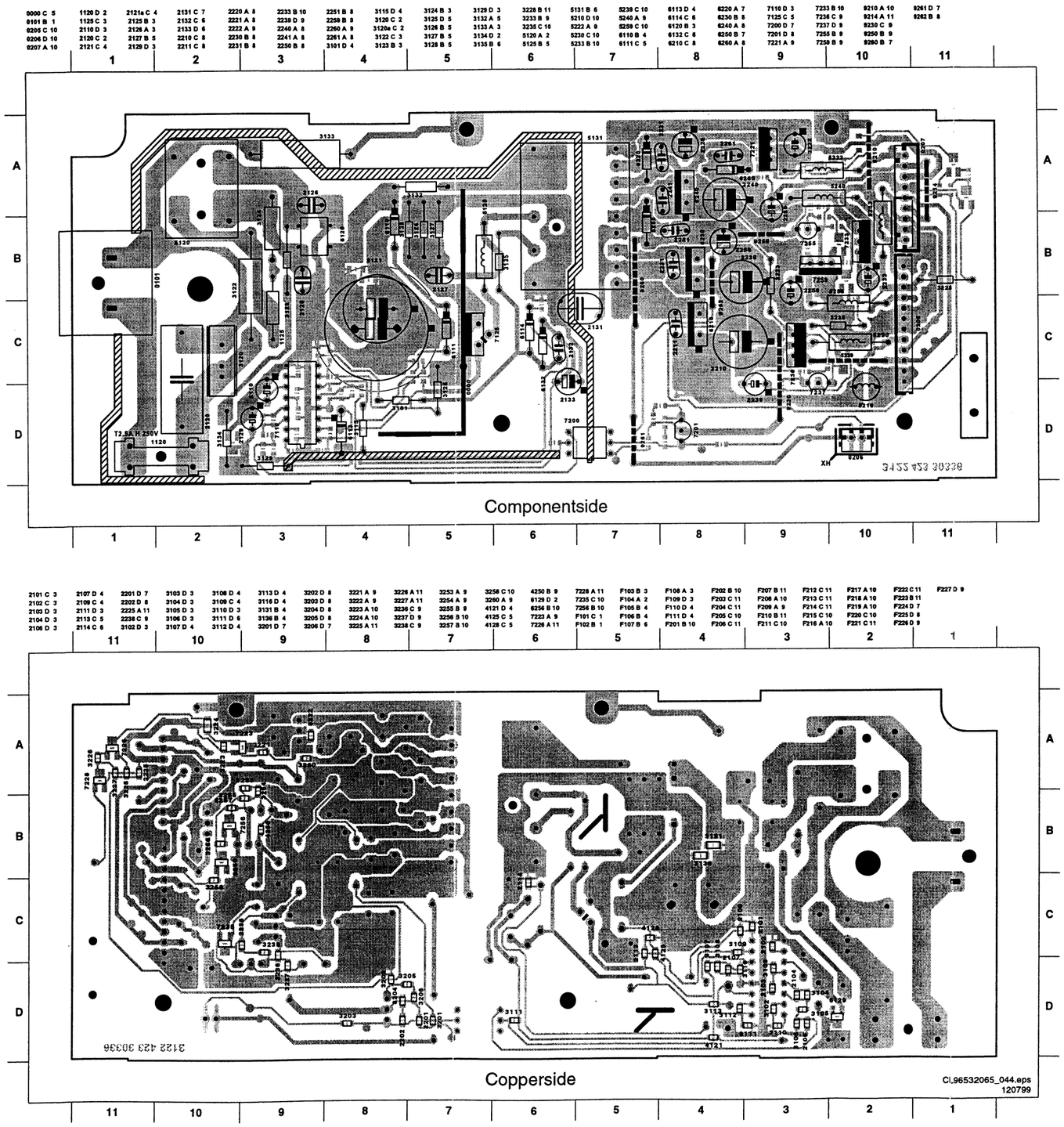
5. Electrical diagrams and Print-layouts

Power supply

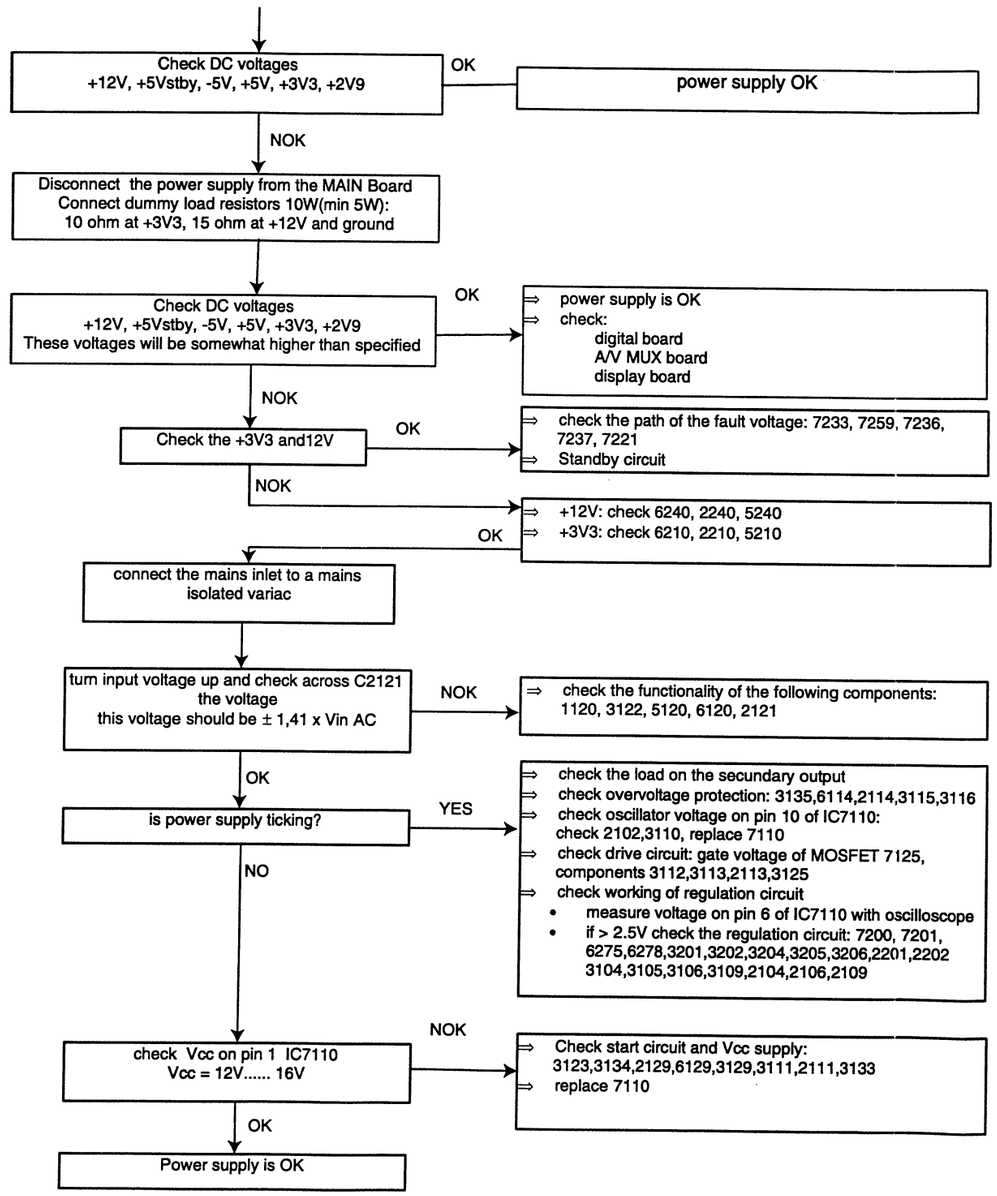
POWER SUPPLY



Power supply



TROUBLESHOOTING POWER SUPPLY UNIT


Check DC voltages
+12V, +5Vstby, -5V, +5V, +3V3, +2V9
OK
power supply OK
NOK
Disconnect the power supply from the MAIN Board
Connect dummy load resistors 10W(min 5W):
10 ohm at +3V3, 15 ohm at +12V and ground
Check DC voltages
+12V, +5Vstby, -5V, +5V, +3V3, +2V9
These voltages will be somewhat higher than specified
OK
⇒ power supply is OK
⇒ check:
digital board
A/V MUX board
display board
NOK
Check the +3V3 and12V
OK
⇒ check the path of the fault voltage: 7233, 7259, 7236, 7237, 7221
⇒ Standby circuit
NOK
⇒ +12V: check 6240, 2240, 5240
⇒ +3V3: check 6210, 2210, 5210
OK
connect the mains inlet to a mains isolated variac
turn input voltage up and check across C2121
the voltage
this voltage should be ± 1,41 x Vin AC
NOK
⇒ check the functionality of the following components: 1120, 3122, 5120, 6120, 2121
OK
is power supply ticking?
YES
⇒ check the load on the secundary output
⇒ check overvoltage protection: 3135,6114,2114,3115,3116
⇒ check oscillator voltage on pin 10 of IC7110:
check 2102,3110, replace 7110
⇒ check drive circuit: gate voltage of MOSFET 7125,
components 3112,3113,2113,3125
⇒ check working of regulation circuit
• measure voltage on pin 6 of IC7110 with oscilloscope
• if > 2.5V check the regulation circuit: 7200, 7201, 6275,6278,3201,3202,3204,3205,3206,2201,2202 3104,3105,3106,3109,2104,2106,2109
NO
check Vcc on pin 1 IC7110
Vcc = 12V..... 16V
NOK
⇒ Check start circuit and Vcc supply:
3123,3134,2129,6129,3129,3111,2111,3133
⇒ replace 7110
OK
Power supply is OK

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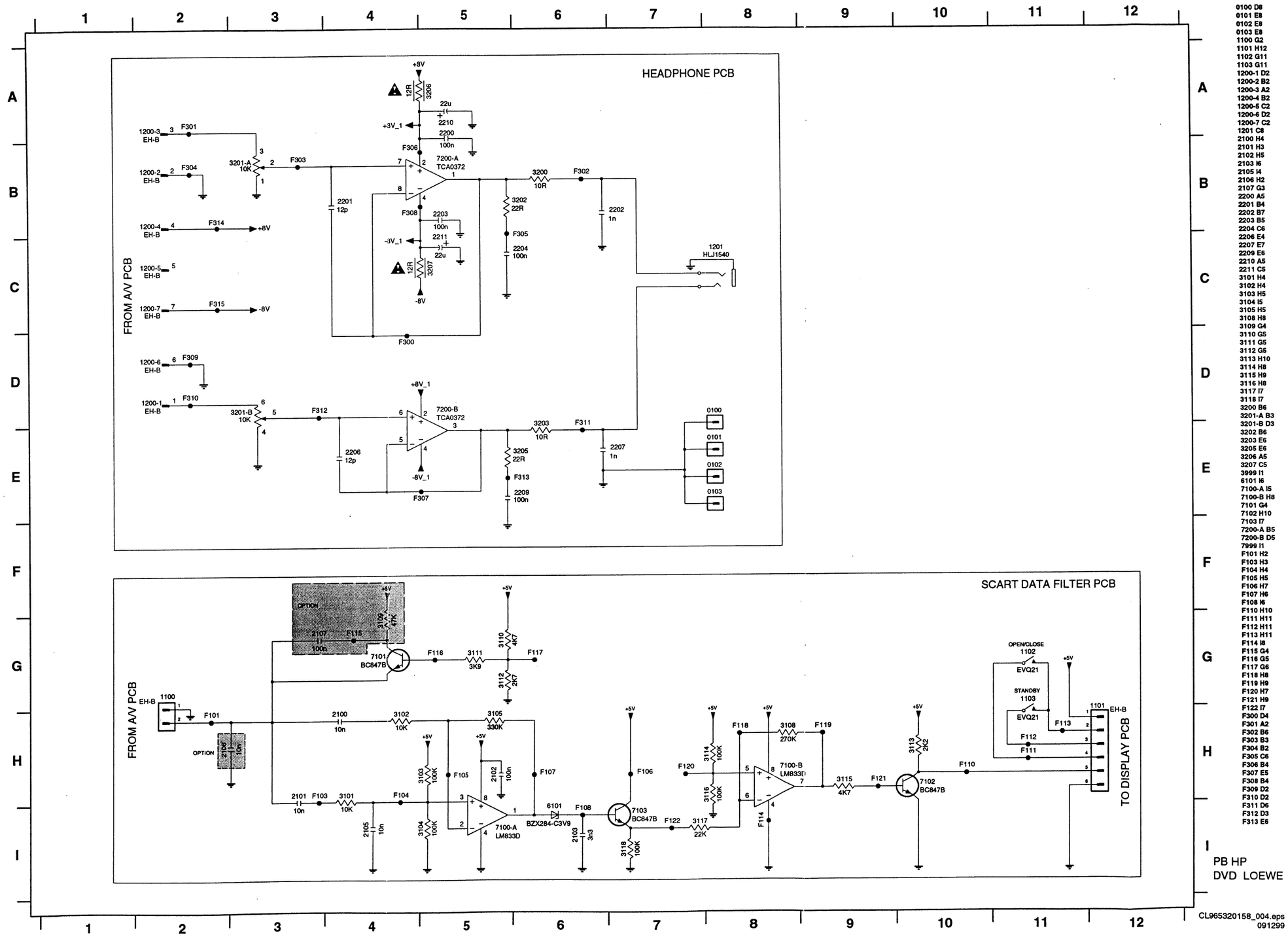
Personal notes:

Headphone panel and standby PWB



0100 D8
0101 E8
0102 E8
0103 E8
1100 G2
1101 H12
1102 G11
1103 G11
1200-1 D2
1200-2 B2
1200-3 A2
1200-4 B2
1200-5 C2
1200-6 D2
1200-7 C2
1201 C8
2100 H4
2101 H3
2102 H5
2103 I6
2105 I4
2106 H2
2107 G3
2200 A5
2201 B4
2202 B7
2203 B5
2204 C6
2206 E4
2207 E7
2209 E6
2210 A5
2211 C5
3101 H4
3102 H4
3103 H5
3104 I5
3105 H5
3108 H8
3109 G4
3110 G5
3111 G5
3112 G5
3113 H10
3114 H8
3115 H9
3116 H8
3117 I7
3118 I7
3200 B6
3201-A B3
3201-B D3
3202 B6
3203 E6
3205 E6
3206 A5
3207 C5
3999 I1
6101 I6
7100-A I5
7100-B H8
7101 G4
7102 H10
7103 I7
7200-A B5
7200-B D5
7999 I1
F101 H2
F103 H3
F104 H4
F105 H5
F106 H7
F107 H6
F108 I6
F110 H10
F111 H11
F112 H11
F113 H11
F114 I8
F115 G4
F116 G5
F117 G6
F118 H8
F119 H9
F120 H7
F121 H9
F122 I7
F300 D4
F301 A2
F302 B6
F303 B3
F304 B2
F305 C6
F306 B4
F307 E5
F308 B4
F309 D2
F310 D2
F311 D6
F312 D3
F313 E6

PB HP
DVD LOEWE

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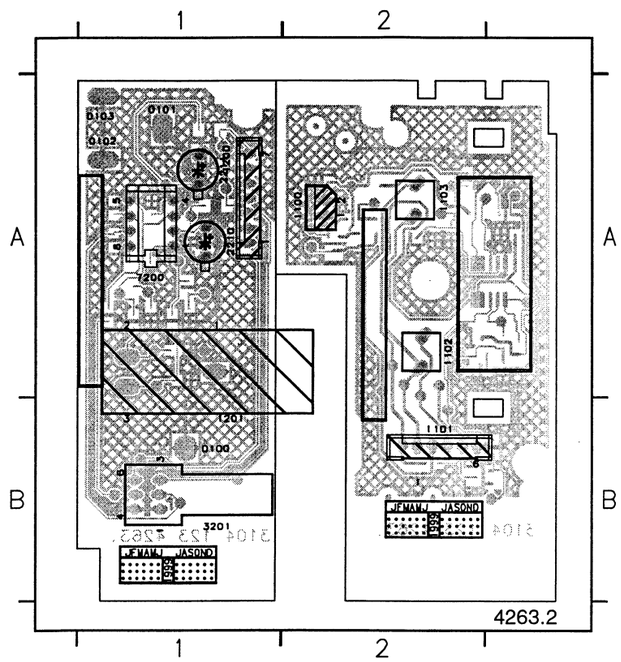
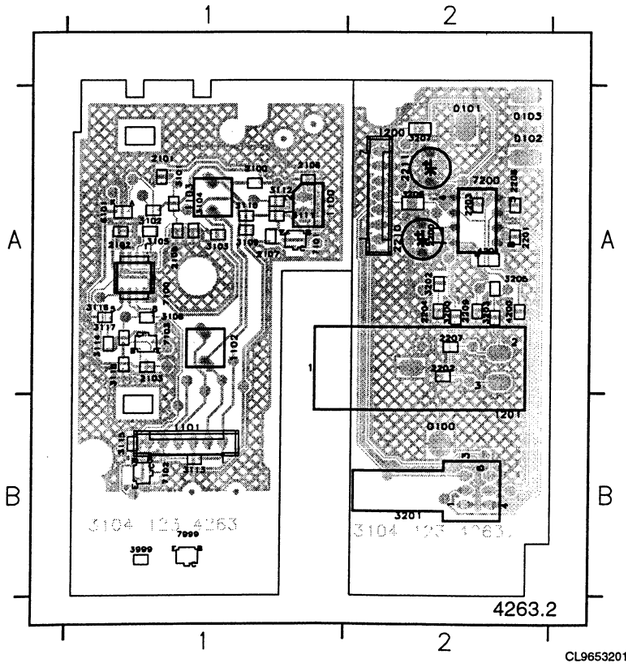
Headphone PWB



0100 B1
0101 A1
0102 A1
0103 A1
1100 A2
1101 B2
1102 A2
1103 A2
1200 A1
1201 B1
2210 A1
2211 A1
3201 B1
7200 A1



2100 A1
2101 A1
2102 A1
2103 A1
2105 A1
2106 A1
2107 A1
2200 A2
2201 A2
2202 A2
2203 A2
2204 A2
2206 A2
2207 A2
2209 A2
3101 A1
3102 A1
3103 A1
3104 A1
3105 A1
3108 A1
3109 A1
3110 A1
3111 A1
3112 A1
3113 B1
3114 A1
3115 B1
3116 A1
3117 A1
3118 A1
3200 A2
3203 A2
3205 A2
3206 A2
3207 A2
3999 B1
4200 A2
4201 A2
6101 A1
7100 A1
7101 B1
7102 B1
7103 A1
7999 B1

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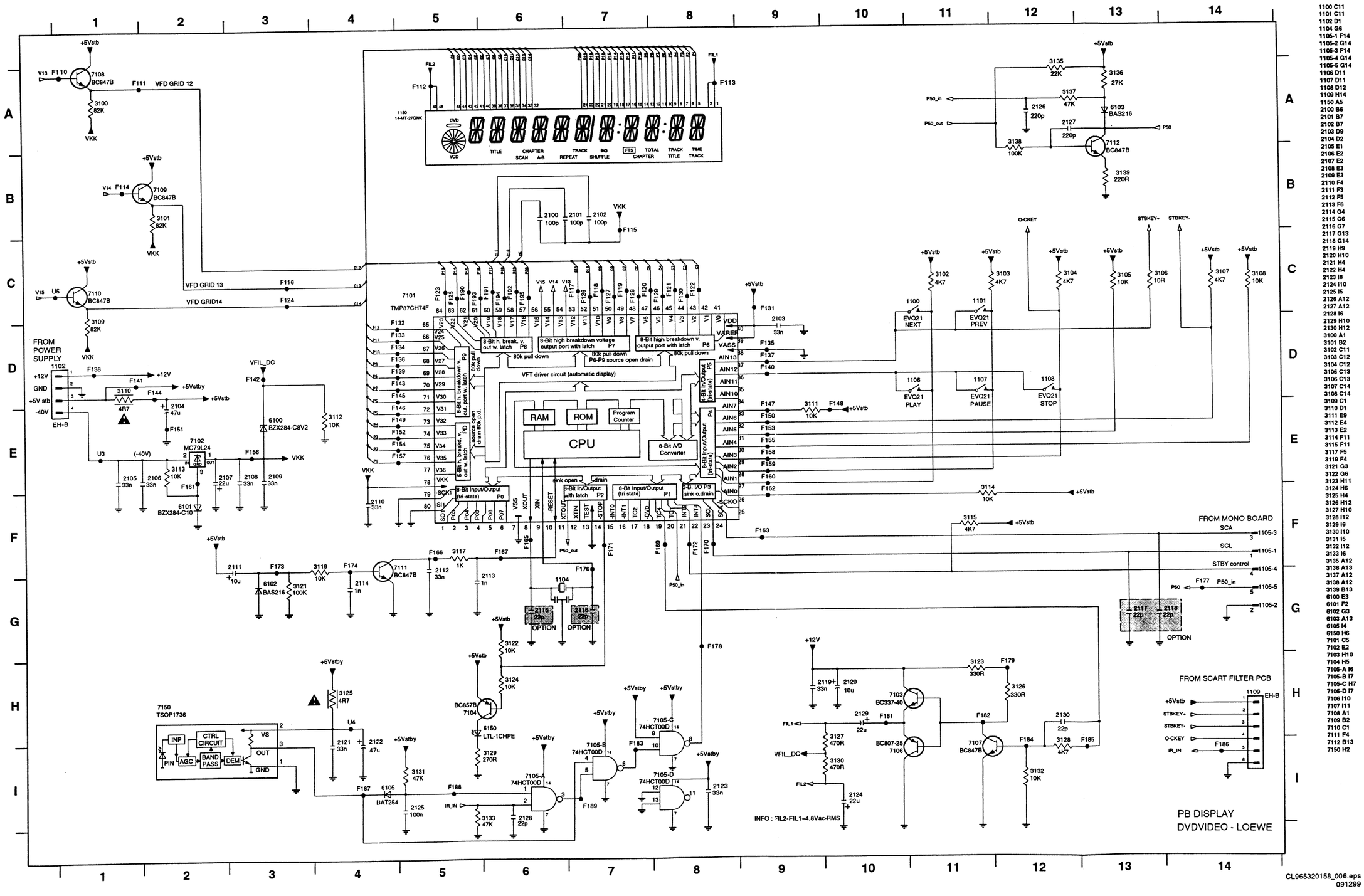
Personal notes:

Display



1100 C11
1101 C11
1102 D1
1104 G6
1105-1 F14
1105-2 G14
1105-3 F14
1105-4 G14
1105-5 G14
1106 D11
1107 D11
1108 D12
1109 H14
1150 A5
2100 B6
2101 B7
2102 B7
2103 D9
2104 D2
2105 E1
2106 E2
2107 E2
2108 E3
2109 E3
2110 F4
2111 F3
2112 F5
2113 F6
2114 G4
2115 G6
2116 G7
2117 G13
2118 G14
2119 H9
2120 H10
2121 H4
2122 H4
2123 I8
2124 I10
2125 I5
2126 A12
2127 A12
2128 I6
2129 H10
2130 H12
3100 A1
3101 B2
3102 C11
3103 C12
3104 C12
3105 C13
3106 C13
3107 C14
3108 C14
3109 C1
3110 D1
3111 E9
3112 E4
3113 E2
3114 F11
3115 F11
3117 F5
3119 F4
3121 G3
3122 G6
3123 H11
3124 H6
3125 H4
3126 H12
3127 H10
3128 I12
3129 I6
3130 I10
3131 I5
3132 I12
3133 I6
3135 A12
3136 A13
3137 A12
3138 A12
3139 B13
6100 E3
6101 F2
6102 G3
6103 A13
6105 I4
6150 H6
7101 C5
7102 E2
7103 H10
7104 H5
7105-A I6
7105-B I7
7105-C H7
7105-D I7
7106 I10
7107 I11
7108 A1
7109 B2
7110 C1
7111 F4
7112 B13
7150 H2

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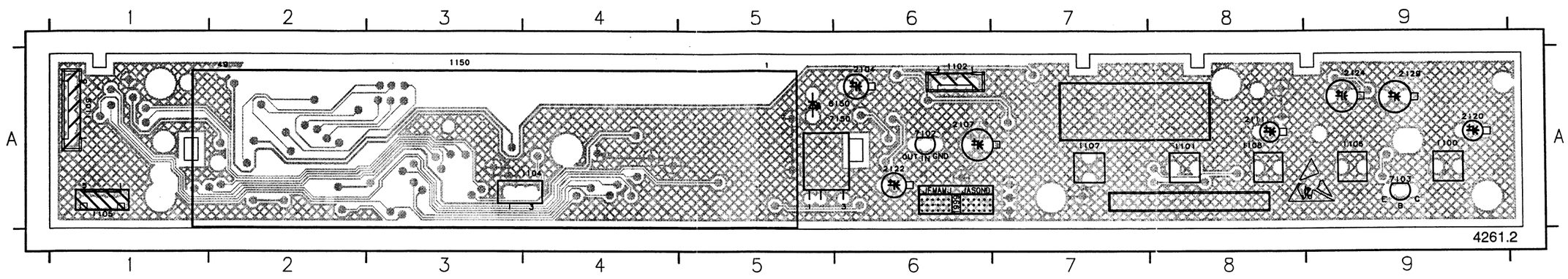
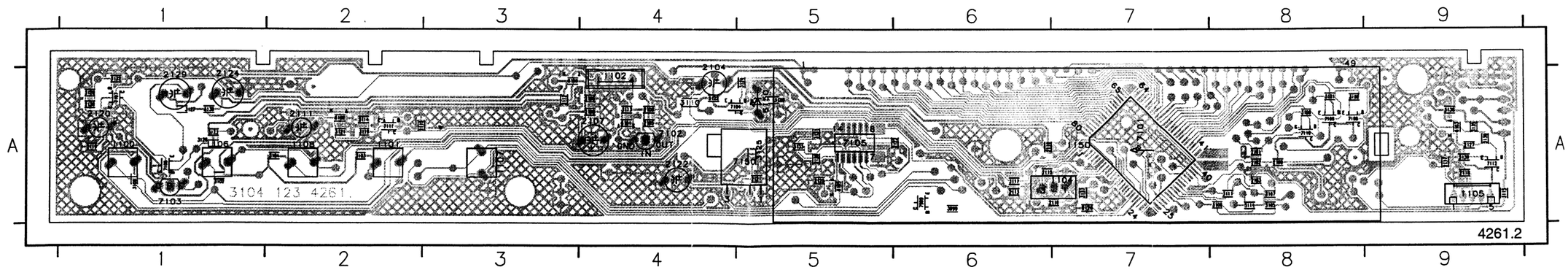
Display PWB

1100 A9 1101 A8 1102 A6 1104 A4 1105 A1 1106 A9 1107 A7 1108 A8 1109 A1 1150 A3 2104 A6 2107 A6 2111 A8 2120 A9 2122 A6 2124 A9 2129 A9 6150 A6 7102 A6 7103 A9 7150 A6



2100 A8 2101 A8 2102 A8 2103 A8 2105 A4 2106 A4 2108 A4 2109 A4 2110 A6 2112 A2 2113 A6 2114 A2 2115 A6 2116 A7 2117 A9 2118 A9 2119 A1 2121 A5 2123 A6 2125 A5 2126 A7 2127 A9 2128 A5 2130 A1 3100 A8 3101 A8 3102 A1 3103 A2 3104 A2 3105 A8 3106 A1 3107 A8 3108 A8 3109 A8 3110 A4 3111 A8 3112 A3 3113 A4 3114 A8 3115 A9 3117 A6 3119 A2 3121 A2 3122 A4 3123 A1 3124 A5 3125 A5 3126 A1 3127 A1 3128 A1 3129 A5 3130 A1 3131 A5 3132 A1 3133 A5 3135 A9 3136 A9 3137 A7 3138 A9 3139 A9 3999 A6 6100 A3 6101 A4 6102 A2 6103 A9 6105 A5 7101 A7 7104 A4 7105 A5 7106 A1 7107 A1 7108 A8 7109 A8 7110 A8 7111 A2 7112 A9 7999 A6



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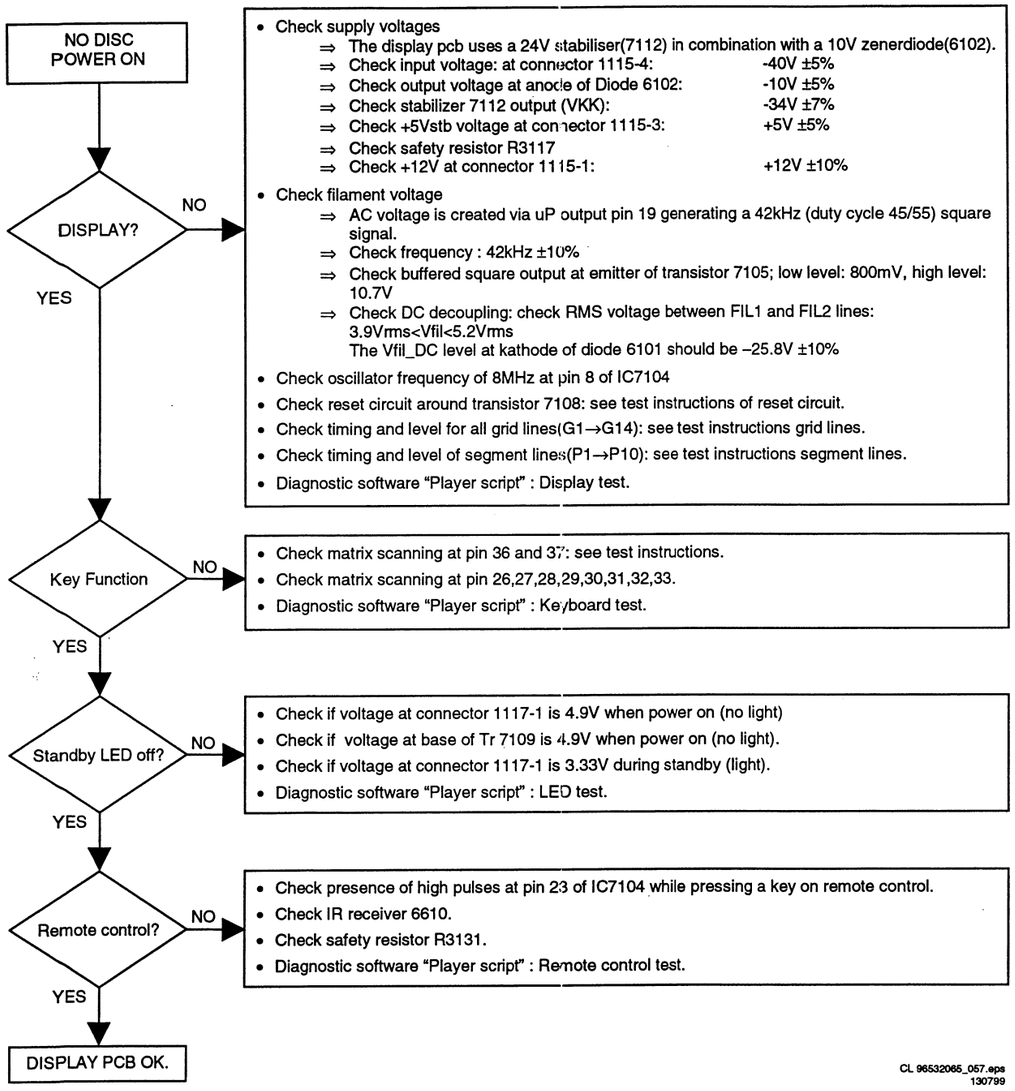
TROUBLESHOOTING DISPLAY BOARD


NO DISC POWER ON
DISPLAY?
NO
YES
• Check supply voltages
⇒ The display pcb uses a 24V stabiliser(7112) in combination with a 10V zenerdiode(6102).
⇒ Check input voltage: at connector 1115-4: -40V ±5%
⇒ Check output voltage at anode of Diode 6102: -10V ±5%
⇒ Check stabilizer 7112 output (VKK): -34V ±7%
⇒ Check +5Vstb voltage at connector 1115-3: +5V ±5%
⇒ Check safety resistor R3117
⇒ Check +12V at connector 1115-1: +12V ±10%
• Check filament voltage
⇒ AC voltage is created via uP output pin 19 generating a 42kHz (duty cycle 45/55) square signal.
⇒ Check frequency : 42kHz ±10%
⇒ Check buffered square output at emitter of transistor 7105; low level: 800mV, high level: 10.7V
⇒ Check DC decoupling: check RMS voltage between FIL1 and FIL2 lines: 3.9Vrms<Vfil<5.2Vrms
The Vfil_DC level at kathode of diode 6101 should be –25.8V ±10%
• Check oscillator frequency of 8MHz at pin 8 of IC7104
• Check reset circuit around transistor 7108: see test instructions of reset circuit.
• Check timing and level for all grid lines(G1→G14): see test instructions grid lines.
• Check timing and level of segment lines(P1→P10): see test instructions segment lines.
• Diagnostic software "Player script" : Display test.
Key Function
NO
• Check matrix scanning at pin 36 and 37: see test instructions.
• Check matrix scanning at pin 26,27,28,29,30,31,32,33.
• Diagnostic software "Player script" : Keyboard test.
YES
Standby LED off?
NO
• Check if voltage at connector 1117-1 is 4.9V when power on (no light)
• Check if voltage at base of Tr 7109 is 4.9V when power on (no light).
• Check if voltage at connector 1117-1 is 3.33V during standby (light).
• Diagnostic software "Player script" : LED test.
YES
Remote control?
NO
• Check presence of high pulses at pin 23 of IC7104 while pressing a key on remote control.
• Check IR receiver 6610.
• Check safety resistor R3131.
• Diagnostic software "Player script" : Remote control test.
YES
DISPLAY PCB OK.

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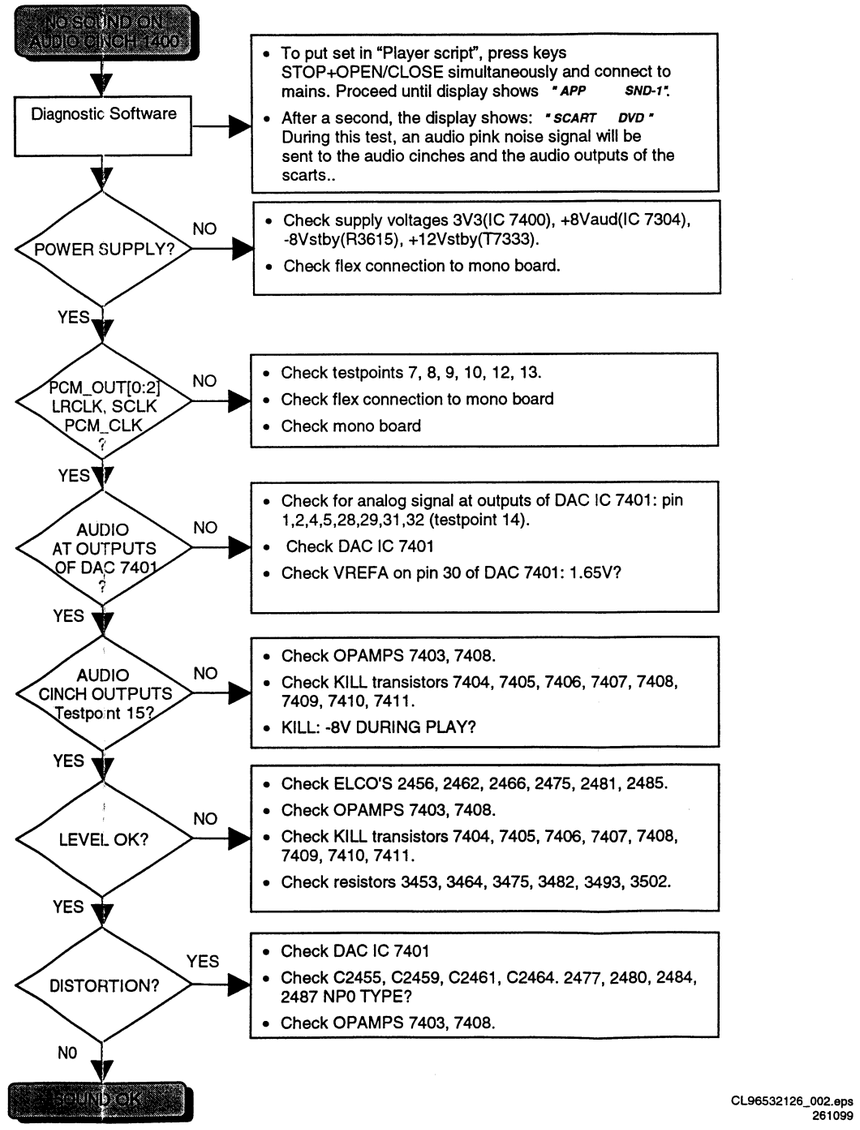
TROUBLESHOOTING A/V BOARD

Testing of A/V board can be done using diagnostic software "Player script".
Mono board is used to generate a sound with the sound tests SND-1 and SND-2 or a VIDEO signal with the picture test PIC-1. Functional control of scart switching and RGB video processing is also possible. See description in chapter "Diagnostic Software: Script Interfaces"

AUDIO PART


NO SOUND ON AUDIO CINCH 1400?
Diagnostic Software
• To put set in "Player script", press keys STOP+OPEN/CLOSE simultaneously and connect to mains. Proceed until display shows "APP SND-1".
• After a second, the display shows: "SCART DVD" During this test, an audio pink noise signal will be sent to the audio cinches and the audio outputs of the scarts..
POWER SUPPLY?
NO
• Check supply voltages 3V3(IC 7400), +8Vaud(IC 7304), -8Vstby(R3615), +12Vstby(T7333).
• Check flex connection to mono board.
YES
PCM_OUT[0:2] LRCLK, SCLK PCM_CLK ?
NO
• Check testpoints 7, 8, 9, 10, 12, 13.
• Check flex connection to mono board
• Check mono board
YES
AUDIO AT OUTPUTS OF DAC 7401 ?
NO
• Check for analog signal at outputs of DAC IC 7401: pin 1,2,4,5,28,29,31,32 (testpoint 14).
• Check DAC IC 7401
• Check VREFA on pin 30 of DAC 7401: 1.65V?
YES
AUDIO CINCH OUTPUTS Testpoint 15?
NO
• Check OPAMPS 7403, 7408.
• Check KILL transistors 7404, 7405, 7406, 7407, 7408, 7409, 7410, 7411.
• KILL: -8V DURING PLAY?
YES
LEVEL OK?
NO
• Check ELCO'S 2456, 2462, 2466, 2475, 2481, 2485.
• Check OPAMPS 7403, 7408.
• Check KILL transistors 7404, 7405, 7406, 7407, 7408, 7409, 7410, 7411.
• Check resistors 3453, 3464, 3475, 3482, 3493, 3502.
YES
DISTORTION?
YES
• Check DAC IC 7401
• Check C2455, C2459, C2461, C2464. 2477, 2480, 2484, 2487 NP0 TYPE?
• Check OPAMPS 7403, 7408.
N0
SOUND OK

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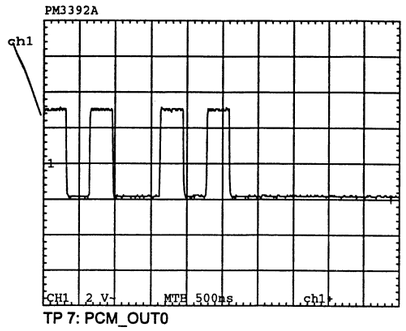
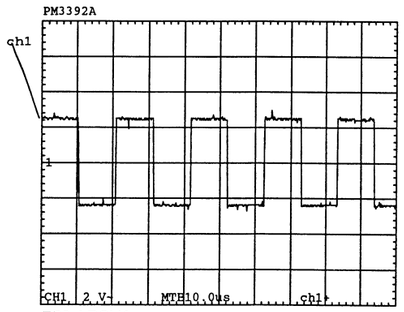
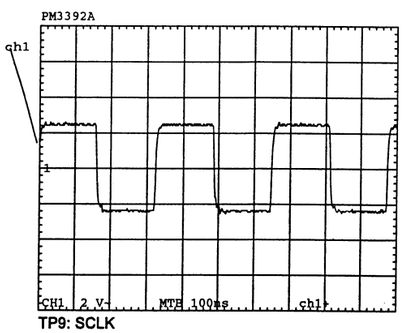
Audio-1



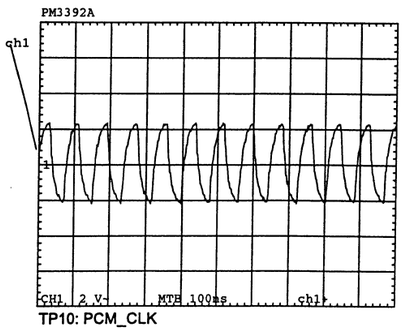
TP 7: PCM_OUT0



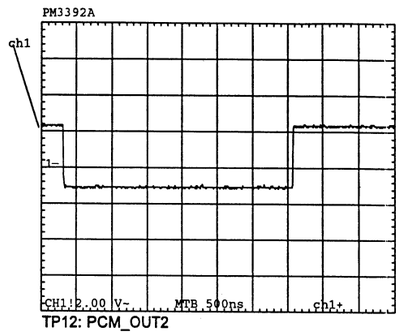
TP8: LRCLK



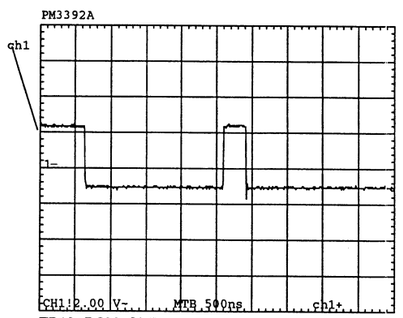
TP9: SCLK



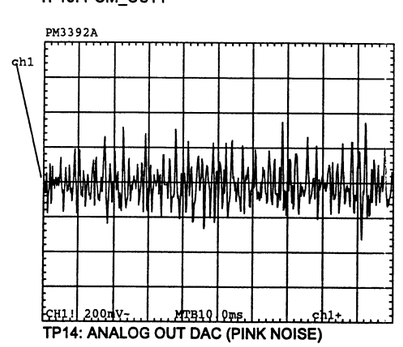
TP10: PCM_CLK



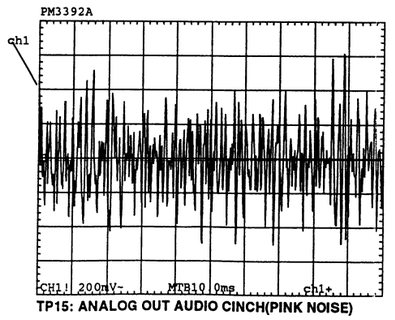
TP12: PCM_OUT2



TP13: PCM_OUT1



TP14: ANALOG OUT DAC (PINK NOISE)



TP15: ANALOG OUT AUDIO CINCH(PINK NOISE)

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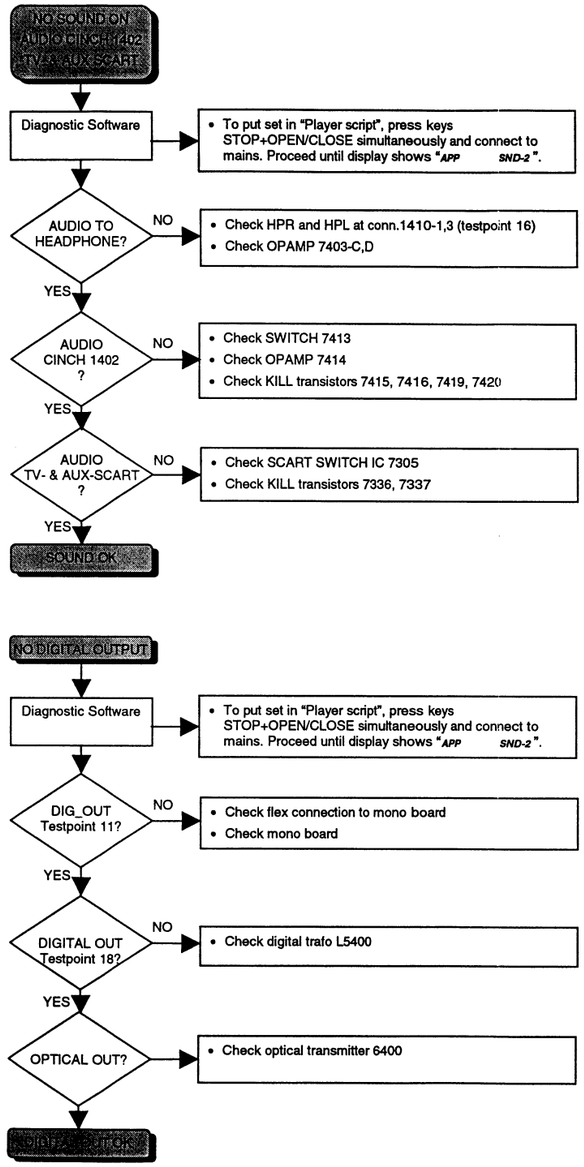
NO SOUND ON AUDIO CINCH 1402, TV-& AUX SCART
Diagnostic Software
• To put set in "Player script", press keys STOP+OPEN/CLOSE simultaneously and connect to mains. Proceed until display shows "APP SND-2 ".
AUDIO TO HEADPHONE?
NO
• Check HPR and HPL at conn.1410-1,3 (testpoint 16)
• Check OPAMP 7403-C,D
YES
AUDIO CINCH 1402 ?
NO
• Check SWITCH 7413
• Check OPAMP 7414
• Check KILL transistors 7415, 7416, 7419, 7420
YES
AUDIO TV- & AUX-SCART ?
NO
• Check SCART SWITCH IC 7305
• Check KILL transistors 7336, 7337
YES
SOUND OK
NO DIGITAL OUTPUT
Diagnostic Software
• To put set in "Player script", press keys STOP+OPEN/CLOSE simultaneously and connect to mains. Proceed until display shows "APP SND-2 ".
DIG_OUT Testpoint 11?
NO
• Check flex connection to mono board
• Check mono board
YES
DIGITAL OUT Testpoint 18?
NO
• Check digital trafo L5400
YES
OPTICAL OUT?
• Check optical transmitter 6400
DIGITAL OUT OK
PM3392A
TP 16 : ANALOG OUTPUT AUDIO HP_R & HP_L
PM3392A
TP 11: DIG_OUT
PM3392A
TP 18: DIGITAL OUT

CL96532126_004.eps
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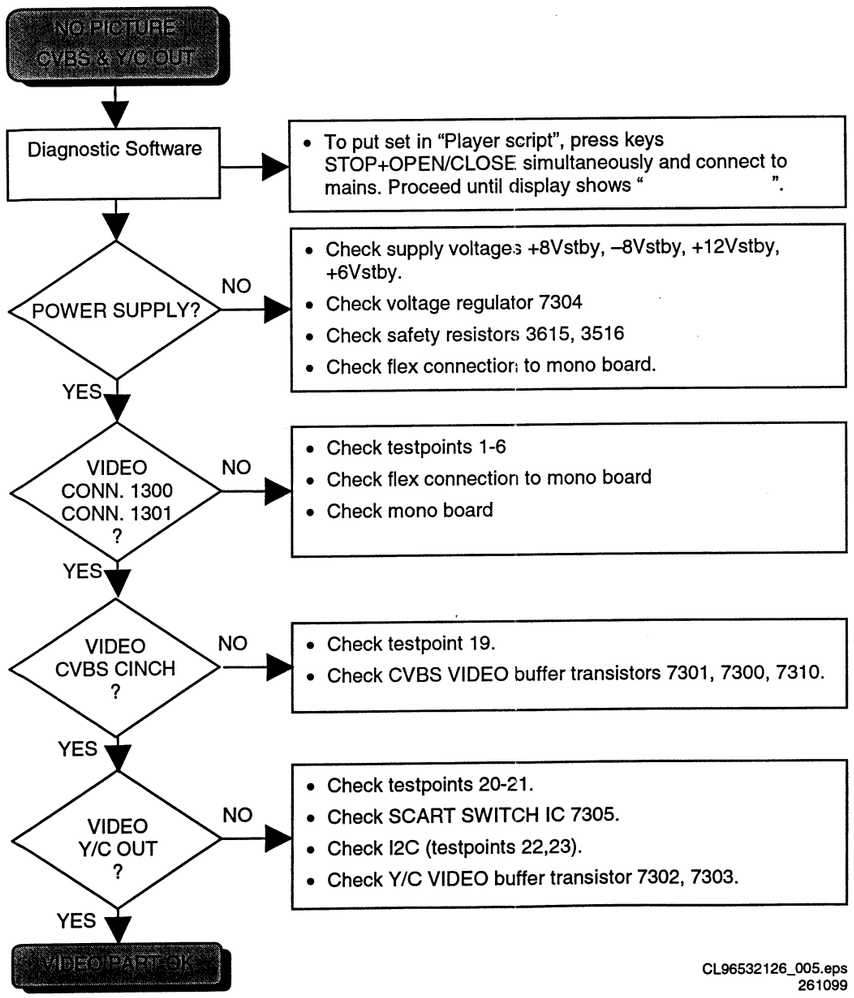
VIDEO PART


NO PICTURE
CVBS & Y/C OUT
Diagnostic Software
• To put set in "Player script", press keys STOP+OPEN/CLOSE simultaneously and connect to mains. Proceed until display shows " ".
POWER SUPPLY?
NO
• Check supply voltages +8Vstby, –8Vstby, +12Vstby, +6Vstby.
• Check voltage regulator 7304
• Check safety resistors 3615, 3516
• Check flex connection to mono board.
YES
VIDEO CONN. 1300 CONN. 1301 ?
NO
• Check testpoints 1-6
• Check flex connection to mono board
• Check mono board
YES
VIDEO CVBS CINCH ?
NO
• Check testpoint 19.
• Check CVBS VIDEO buffer transistors 7301, 7300, 7310.
YES
VIDEO Y/C OUT ?
NO
• Check testpoints 20-21.
• Check SCART SWITCH IC 7305.
• Check I2C (testpoints 22,23).
• Check Y/C VIDEO buffer transistor 7302, 7303.
YES
VIDEO PART OK

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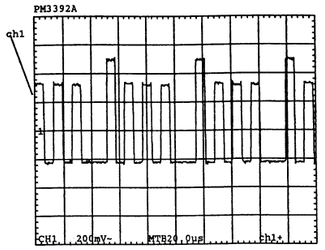
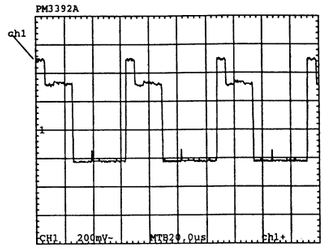
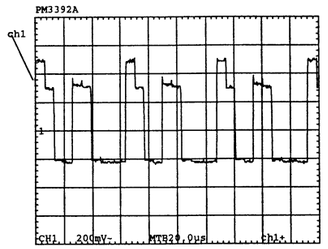
Video-1



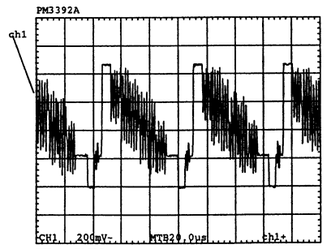
TP 1 : video B



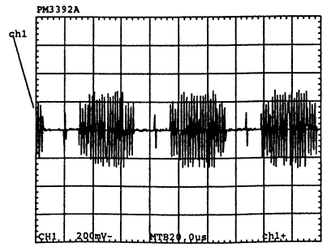
TP 2 : video G



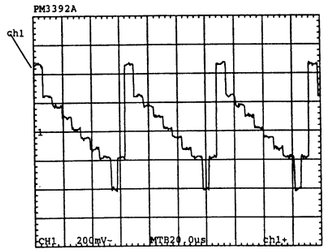
TP 3 : video R



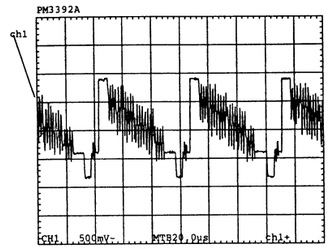
TP 4 : CVBS



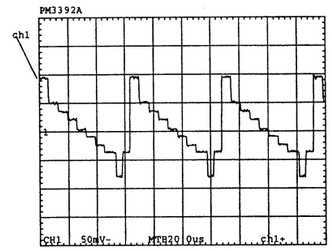
TP 5 : C_ENC



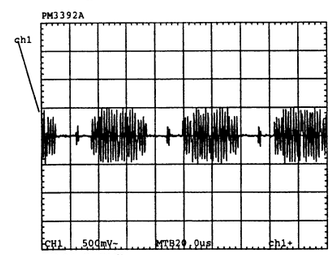
TP 6 : Y_ENC



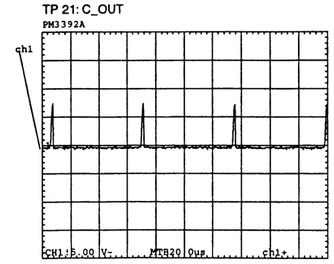
TP 19 : CVBS_OUT



TP20: Y_OUT



TP 21: C_OUT



TP24: HSYNC

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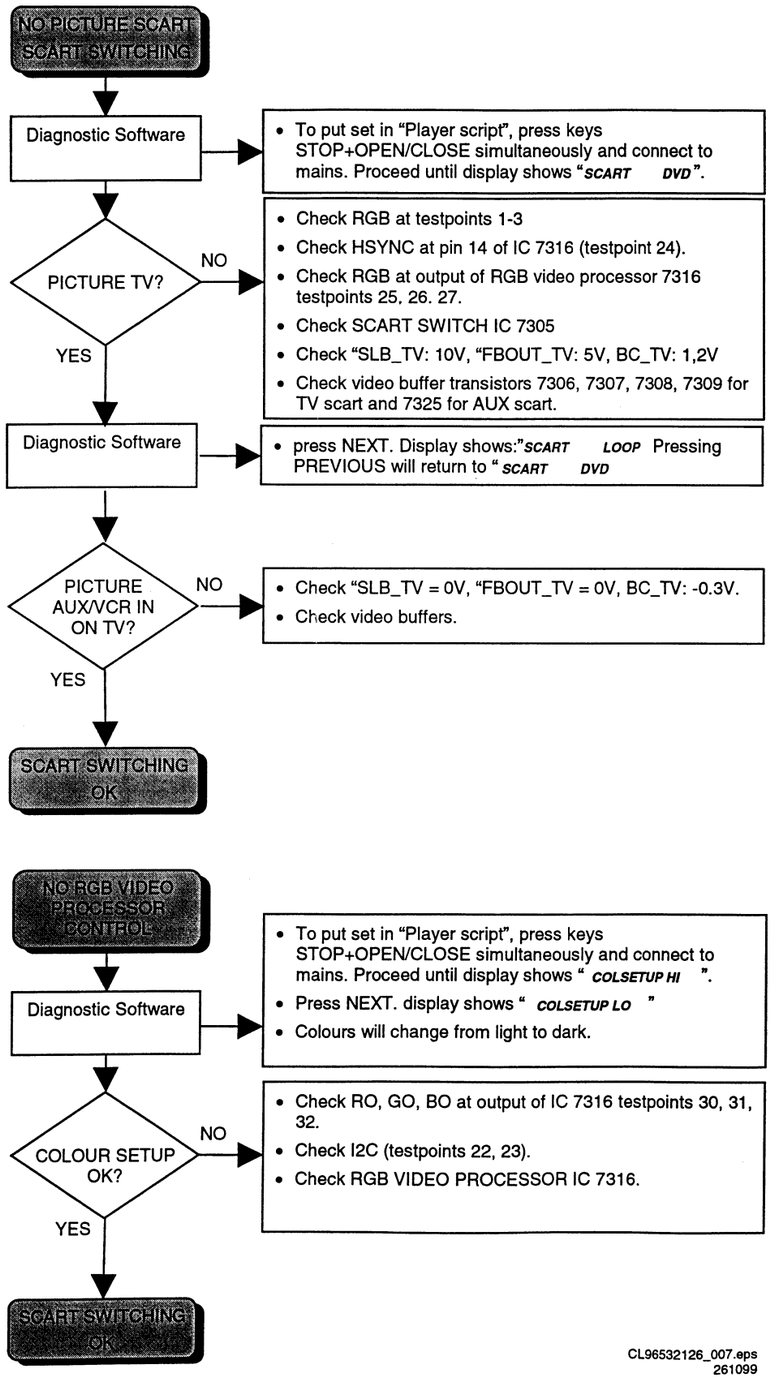
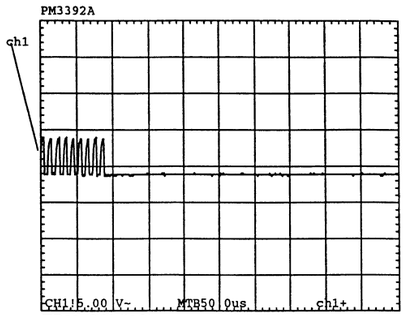
261099

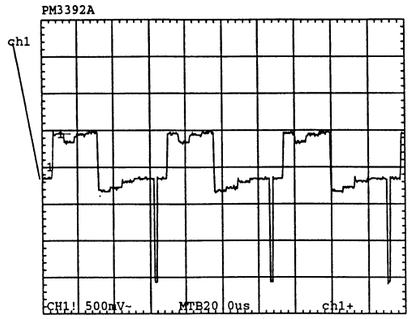

NO PICTURE SCART
SCART SWITCHING
Diagnostic Software
• To put set in "Player script", press keys STOP+OPEN/CLOSE simultaneously and connect to mains. Proceed until display shows "SCART DVD".
PICTURE TV?
NO
YES
• Check RGB at testpoints 1-3
• Check HSYNC at pin 14 of IC 7316 (testpoint 24).
• Check RGB at output of RGB video processor 7316 testpoints 25, 26. 27.
• Check SCART SWITCH IC 7305
• Check "SLB_TV: 10V, "FBOUT_TV: 5V, BC_TV: 1,2V
• Check video buffer transistors 7306, 7307, 7308, 7309 for TV scart and 7325 for AUX scart.
Diagnostic Software
• press NEXT. Display shows:"SCART LOOP Pressing PREVIOUS will return to " SCART DVD
PICTURE AUX/VCR IN ON TV?
NO
YES
• Check "SLB_TV = 0V, "FBOUT_TV = 0V, BC_TV: -0.3V.
• Check video buffers.
SCART SWITCHING OK
NO RGB VIDEO PROCESSOR CONTROL
Diagnostic Software
• To put set in "Player script", press keys STOP+OPEN/CLOSE simultaneously and connect to mains. Proceed until display shows " COLSETUP HI ".
• Press NEXT. display shows " COLSETUP LO "
• Colours will change from light to dark.
COLOUR SETUP OK?
NO
YES
• Check RO, GO, BO at output of IC 7316 testpoints 30, 31, 32.
• Check I2C (testpoints 22, 23).
• Check RGB VIDEO PROCESSOR IC 7316.
SCART SWITCHING OK

CL96532126_007.eps
261099

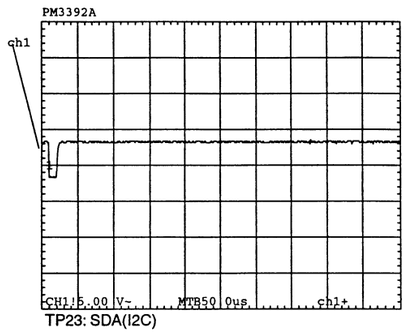
Video-2



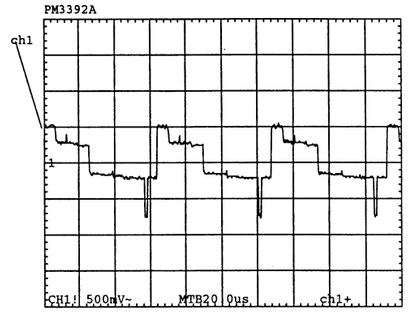
TP22: SCL(I2C)



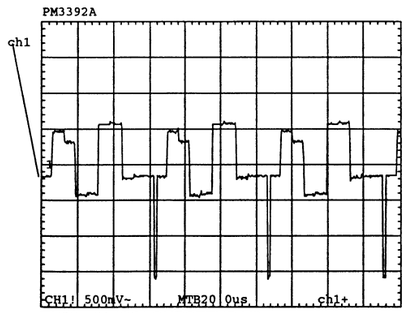
TP26: GO (COLOURSETUP HI)



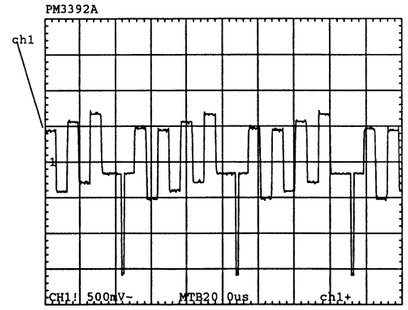
TP23: SDA(I2C)



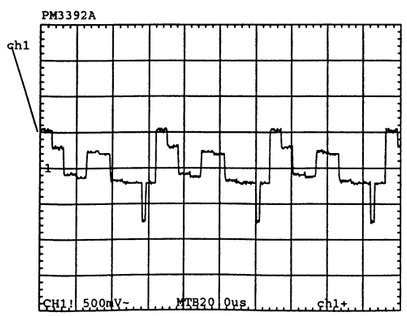
TP 26: GO (COLOURSETUP LO)



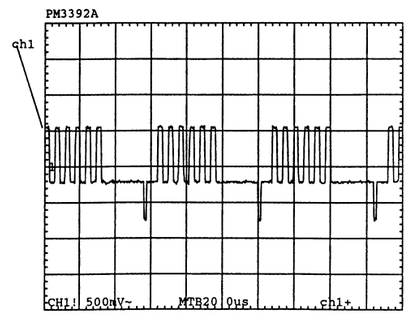
TP25: RO (COLOURSETUP HI)



TP27: BO (COLOURSETUP HI)



TP25: RO (COLOURSETUP LO)



TP27: BO (COLOURSETUP LO)

CL96532126_008.eps
261099

1300-1 A1 1300-2 C1 1300-3 C1 1300-5 C1 1300-6 G1 1300-8 A1 1300-9 A1 1301-10 D1 1301-13 D1
1301-14 G1 1301-15 E1 1301-16 E1 1301-2 D1 1301-8 D1 1301-9 E1 2351 C12 2352 C13 2354 H3
2360 D10 2361 D11 2362 D11 2363 E15 2364 E15 2365 E15 2367 F12 2370 G3 2372 G13
2373 G14 2374 G3 2379 C5 2380 C6 2381 C7 2384 C3 2386 C9 2387 C3 2388 D9
2389 C3 2390 D4 2391 D3 2392 D9 2393 D4 2394 D9 2397 D4 2398 D3 2400 E4
2401 E9 2403 E9 2405 F6 2406 F7 2407 F8 2412 H4 2415 E1 2416 E11 2417 D15
2419 B3 3321 D10 3322 D10 3331 B8 3334 C8 3338 H13 3339 H13 3340 H14 3341 H14
3350 C7 3352 B5 3353 C5 3400 D3 3401 D3 3403 D3 3404 D3 3405 D3 3406 E3
3414 E4 3415 E4 3418 F6 3419 F6 3420 F8 3424 F4 3433 H4 3610 H6 3611 H6
3612 H7 3613 H6 3614 H7 3615 A3 3616 B2 3617 B1 3618 B2 3619 B2 3620 E3
3621 F2 3622 F1 3623 F2 3624 F1 3625 G1 3626 A2 3627 E2 3628 F2 3999 H9
4304 F13 4305 F13 4307 A8 4308 A8 4309 A8 6302 B1 6303 B1 7304 H3 7305 C11
7316 C4 7322 F4 7329 H6 7330 H7 7331 A2 7332 B2 7333 F2 7334 F2 7335 G1
7999 H10 F105 A1 F106 C1 F109 C1 F110 C1 F112 G2 F113 A1 F116 C13 F117 C12
F118 C12 F119 C13 F120 H4 F121 H5 F122 C13 F123 C14 F124 C14 F125 C14 F128 D1
F129 C15 F130 D1 F131 C10 F132 C15 F135 E1 F136 C15 F138 D1 F139 D11 F141 D11
F142 D1 F143 D15 F144 G1 F146 C15 F150 E1 F151 E11 F153 E11 F154 C15 F156 C15
F158 E11 F159 E15 F160 E11 F161 E15 F162 E11 F168 F13 F169 F13 F170 F12 F172 F12
F173 F12 F176 G13 F177 G14 F180 G14 F181 G13 F182 G3 F185 A10 F188 A10 F191 A10
F196 C5 F200 C5 F201 C5 F202 C6 F203 C6 F204 C7 F211 C4 F213 C9 F214 C4
F215 D9 F217 C4 F221 D4 F223 D4 F224 D9 F225 D4 F226 D9 F227 D4 F228 D4
F230 E4 F231 E9 F233 E9 F237 E6 F238 E7 F242 E7 F243 E8 F244 F4 F249 F4
F260 A1 F261 E15 F262 E2 F263 E11 F265 H7 F266 H7 F267 H7 F268 H6 F269 A2
F270 A3 F271 B2 F272 B2 F273 B2 F274 B1 F275 B1 F276 C14 F277 F2 F278 F1
F279 F2 F280 F2 F281 G1 F298 C14 F301 B1

1 A VIDEO CONTROL & SCART SWITCH

FROM MONO PCB

1300-1 F105 P50 · 1300-8 F260 0Bv · 1300-9 F113 -9.5V · OPTIONAL 3626 · 7331 BC337-25 · -9.2V · 3615 4R7 F270 -8Vstby · 3616 4K7 F271 -8.6V · 3617 10K · 3618 1K F272 -0.16V · 2419 47u

F301 0V DC_OFF · 6303 BAS216 · 6302 BAS216 -1.2V F274 · 3619 10K -0.7V · 7332 BC857B F273

1300-5 F110 TP3 · 1300-3 F109 TP2 · 1300-2 F106 TP1 · 2384 2387 2389 470n · F211 F214 F217

1301-2 F128 HSYNC · 1301-8 F130 SCL · 1301-10 F138 SDA · 1301-13 F142

1301-15 · 1301-16 F150 2415 10u F262 TP6 C-Y_ENC

OPTIONAL 3627 F275 3620 F276 +12Vstby · 1301-9 F135 11.2 V · 10.8V · 7333 BC327-25 · 3621 4K7 F277 11V · 3622 10K · 3623 1K5 · 3628 1K5 F278 +6V_ON · F279 0.16V · 1.6V · 3624 10K F280 0.7V · 7334 BC847B · DC_OFF 3625 1K F281 0V · 7335 BC847B · CVBS 1 B

1300-6 F112 CVBS TP4 2370 10u 50

1301-14 F144 C-ENC TP6 2374 220n F182

7304 LF80C · +12Vstby 10.8V · IN OUT GND · 2354 220n · F120 3433 8V F121 · +8VAud · +8Vstby · 2412 47u

+5V · 3610 4K7 · 3611 4K7 F268 0.7V · 7329 BC847B · F265 0V DC_OFF · F266 3612 10K · F267 0.7V · 7330 BC847B · 3613 2K7 · 3614 10K · SLB_VCR

3999 7329 BC847B PROCESS CHIPS

V ELECTRONIC VOLTMETER DC

+8VSTBY · 3352 5K6 · F198 · F201 · 3353 1K · F209 · 2379 100n · F202 · 2380 100n · F203 · 3350 10K · F204 · 2381 100n · 3331 4K7 · 3334 4K3

7316 TDA4780 · VCC · CPDST · yPHUE · BCL · CPDL · SOURCE SWITCH · Y- MATRIX · ADAPTIVE BLACK · GAMMA · PEAK BEAM LIMITING · PEAK DRIVE LIMITING · SATURATION ADJUST · CONTRAST ADJUST · BRIGHTNESS ADJUST · I2C · SYNC INPUT · LEAKAGE AND CUT-OFF CONTROL · OUTPUT BUFFER RO CLAMP1 · OUTPUT BUFFER GO CLAMP2 · OUTPUT BUFFER BO CLAMP3 · TP25 TP26 TP27 · F213 F215 F223 F224 F226 F233 · 2386 2388 2394 2403 470n 220n 2392 2401

R 3400 75R · G 3403 75R · B 3405 75R · 3401 3404 3406 75R · 2390 2393 2398 10n · 2387 2400 10n · F221 F225 F227 F228 F230 · R-Y B-Y R2 G2 B2 Y R G B

SCL SDA · TP22 TP23 · 3414 4K7 · 3415 22K F244 · HSYNC · 3424 22K F249 0.7V · 7322 BC847B · +8VSTBY · F237 F238 · 2405 47p · 3418 100R · 3419 100R · 2406 47p · F242 F243 · 2407 330n · 3420 82K

OPTIONAL 4307 RO · 4308 GO · 4309 BO · F185 F188 F191 (RO,BO,GO)

1 B 1 B 1 B

OP MODE

+8VSTBY · 7305 STV6410A · 2351 100n F117 · COUT_AUX F118 · 2352 100n · F119 · Y_OUT LOUT_AUX · C_OUT ROUT_AUX · F122 F298 · F125 F123 F124 · YCVBSOUT_TV LOUT_TV ROUT_TV · F129 F132 F136 F146 · F154 F156 · YCVBSOUT_AUX · FBOUT-TV FBIN-AUX FBIN-ENC ADD SCL SDA VCC12 YCVBSIN-AUX SLB-TV YIN-AUX SLB-VCR RCIN-AUX GNDV1 GIN-AUX SLB-AUX BIN-AUX · YCVBSOUT-VCR LOUT-AUX COUT-VCR ROUT-AUX · YCVBSOUT-TV LOUT-TV COUT-TV ROUT-TV · YCVBSOUT-STB LIN-AUX YCVBSIN-ENC RIN-AUX YIN-ENC RIN-STB CIN-ENC LIN-STB RCIN-ENC GIN-ENC BIN-ENC RIN-VCR CIN-VCR LIN-VCR · ROUT-TV GOUT-TV LOUT-VCR BOUT-TV ROUT-VCR LOUT-CINCH ROUT-CINCH GNDA RIN-TV VCCA CIN-TV LIN-TV YCVBSIN-TV VREF YCVBSIN-VCR · F139 F141 · 3321 100R · 3322 100R · 2360 47p · 2361 47p · +12Vstbv · 2362 100n · F151 SLB_TV · F153 SLB_VCR · F158 F160 F263 2416 F162 100n · F161 YCVBSIN · F159 · 2364 100u · 2365 22n · 2417 F143 100n · +8VSTBY 100n 2363 · F261 BCTV

2367 100n · F170 F172 F173 · F168 F169 · 4304 4305 · Y_ENC · LIN_AUX RIN_AUX

BO GO RO

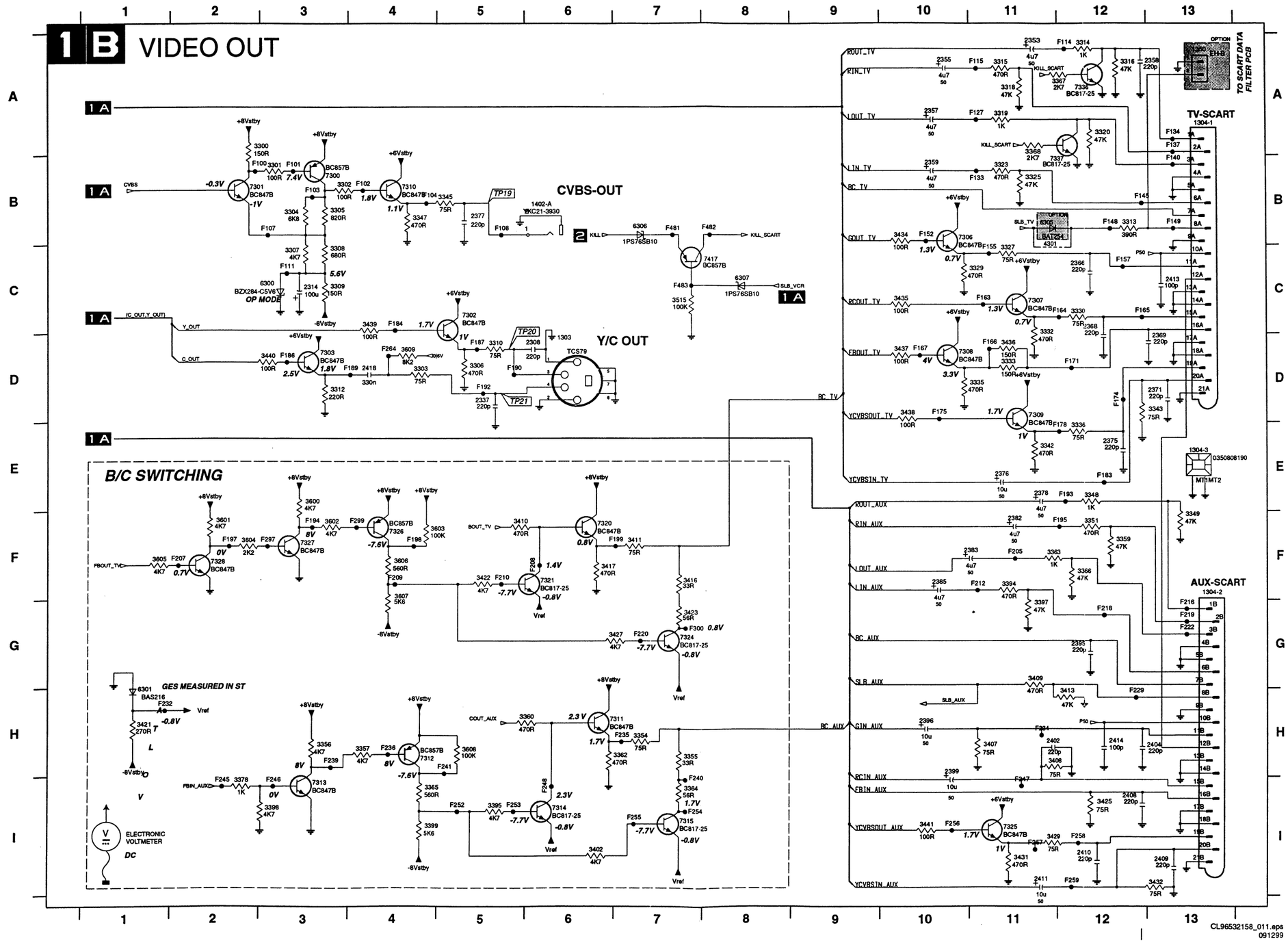
GES MEASURED IN ST

F178 A T · F177 · 2372 4u7 50 · 2373 4u7 50 · F181 F180 · 3338 10K V · 3339 00R · 3340 00R · 3341 10K · STEREO_R STEREO_L · 2 2

PB A/V MUX

CL96532158_009.eps
091299

1 B VIDEO OUT



1303 D6
1304-1 A13
1304-2 F13
1304-3 E13
1350 A13
1402-A B6
2308 D6
2314 C3
2337 D5
2353 A11
2355 A10
2357 A10
2358 A13
2359 B10
2366 C12
2368 C12
2369 C13
2371 D13
2375 E12
2376 E11
2377 B5
2378 E11
2382 F11
2383 F11
2385 F10
2395 G12
2396 H10
2399 H10
2402 H11
2404 H13
2408 I12
2409 I13
2410 I12
2411 I11
2413 C13
2414 H12
2418 D4
3300 A3
3301 B3
3302 B3
3303 D4
3304 B3
3305 B3
3306 D5
3307 C3
3308 C3
3309 C3
3310 D5
3312 D3
3313 B12
3314 A12
3315 A11
3316 A12
3318 A11
3319 A11
3320 A12
3323 B11
3325 B11
3327 C11
3329 C11
3330 C12
3332 D11
3333 D11
3335 D11
3336 E12
3342 E11
3343 D13
3345 B5
3347 B4
3348 E12
3349 F13
3351 F12
3354 H7
3355 H7
3358 H3
3357 H4
3359 F12
3360 H6
3362 H7
3363 F11
3364 I7
3365 I4
3366 F12
3367 A12
3368 A11
3378 I2
3394 F11
3395 I6
3397 G11
3398 I3
3399 I4
3402 I6
3407 H11
3408 H11
3409 G11
3410 F5
3411 F7
3413 H12
3416 F7
3421 H1
3422 F5
3423 G7
3425 I12
3427 G7
3429 I11
3431 I11
3432 I13
3434 B10
3435 C10
3436 D11
3437 D10
3438 D10
3439 C4
3440 D3
3441 I10
3515 C7
3600 E3
3601 F2
3602 F3
3603 F4
3604 F2
3605 F1
3606 F4
3607 F4
3608 H5
3609 D4
4301 C11
6300 C3
6301 H1
6305 B11
6306 B7
6307 C8
7300 B3
7301 B2
7302 C5
7303 D3
7306 B10
7307 C11
7308 D10
7309 D11
7310 B4
7311 H6
7312 H4
7313 I3
7314 I6
7315 I7
7320 F6
7321 F6
7324 G7
7325 I11
7326 F4
7327 F3
7328 F2
7336 A12
7337 B11
7417 C8
F100 B2
F101 B3
F102 B4
F103 B3
F104 B4
F107 B3
F108 B5
F111 C3
F114 A12
F115 A11
F127 A11
F133 B11
F134 A13
F137 A13
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F145 B12
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F216 G13
F218 G12
F219 G13
F220 G7
F222 G13
F229 H12
F232 H1
F234 H11
F235 H7
F236 H4
F239 H3
F240 H7
F241 H5
F245 I2
F246 I3
F247 I11
F248 I6
F252 I5
F253 I5
F254 I7
F255 I7
F256 I10
F257 I11
F258 I12
F259 I12
F264 D4
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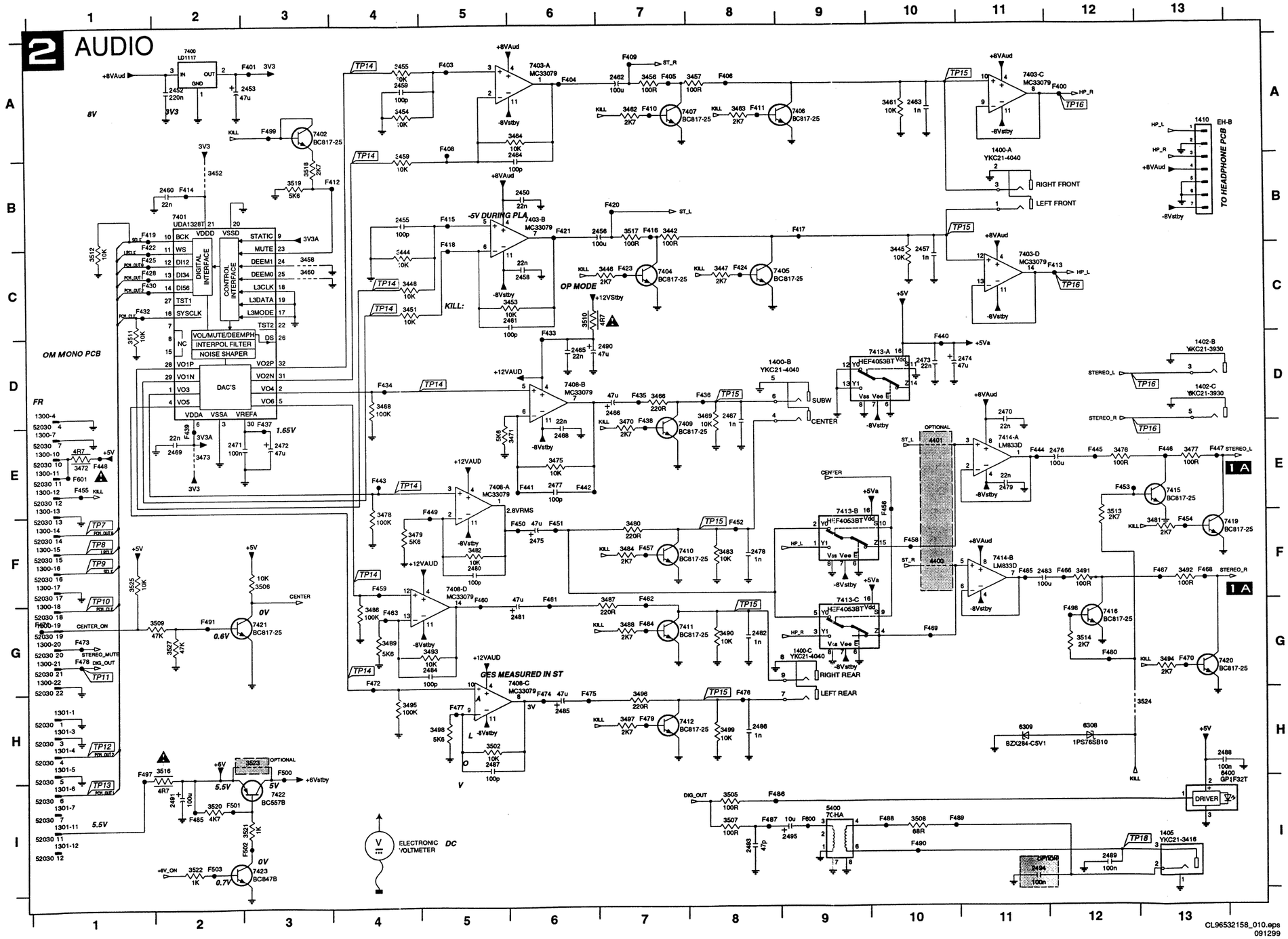
F299 F4
F300 G7
F481 B7
F482 B8
F483 C7

PB A/V MUX

2 AUDIO



1300-10 E1	3494 Q13	F459 F4
1300-11 E1	3495 H4	F460 F5
1300-12 E1	3496 H7	F461 F6
1300-13 E1	3497 H7	F462 F7
1300-14 F1	3498 H5	F463 G4
1300-15 F1	3499 H8	F464 G7
1300-16 F1	3502 H5	F465 F11
1300-17 F1	3505 I8	F466 F12
1300-18 G1	3506 F3	F467 F13
1300-19 G1	3507 I8	F468 F13
1300-20 G1	3508 I10	F469 G10
1300-21 G1	3509 G2	F470 G13
1300-22 G1	3510 C6	F471 G1
1300-4 D1	3511 C1	F472 G4
1300-7 E1	3512 C1	F473 G1
1301-1 H1	3513 F12	F474 H6
1301-11 I1	3514 G12	F475 H6
1301-12 I1	3516 H2	F476 H8
1301-3 H1	3517 B7	F477 H5
1301-4 H1	3518 B3	F478 G1
1301-5 H1	3519 B3	F479 H7
1301-6 I1	3520 I2	F480 G12
1301-7 I1	3521 I3	F485 I2
1400-A A11	3522 I2	F496 I8
1400-B D9	3523 H3	F487 I8
1400-C G9	3524 H13	F488 I10
1402-B D13	3525 F1	F489 I10
1402-C D13	3527 G2	F490 I10
1405 I13	4400 F10	F491 G2
1410 A13	4401 E10	F497 H1
2450 B6	5400 I9	F498 G12
2452 A2	6308 H12	F499 A3
2453 A3	6309 H11	F500 H3
2455 B4	6400 I13	F501 I2
2456 B7	7400 A2	F502 I3
2457 C10	7401 B2	F503 I2
2458 C6	7402 A3	F600 I9
2459 A4	7403-A A6	F601 E1
2460 B2	7403-B B6	
2461 C6	7403-C A11	
2462 A7	7403-D C11	
2463 A10	7404 C7	
2464 A6	7405 C8	
2465 D6	7406 A9	
2466 D7	7407 A7	
2467 D8	7408-A E5	
2468 E6	7408-B D6	
2469 E2	7408-C G5	
2470 D11	7408-D F5	
2471 E2	7409 E7	
2472 E3	7410 F7	
2473 D10	7411 G7	
2474 D11	7412 H7	
2475 F6	7413-A D10	
2476 E12	7413-B F9	
2477 E6	7413-C G9	
2478 F8	7414-A E11	
2479 E11	7414-B F11	
2480 F5	7415 E13	
2481 G6	7416 G12	
2482 G8	7419 F13	
2483 F11	7420 G13	
2484 G5	7421 G3	
2485 H6	7422 I3	
2486 H8	7423 I3	
2487 H5	F400 A12	
2488 H13	F401 A3	
2489 I12	F403 A5	
2490 D7	F404 A6	
2491 I2	F405 A7	
2493 I8	F406 A8	
2494 I11	F408 A5	
2495 I9	F409 A7	
3442 B7	F410 A7	
3444 C4	F411 A8	
3445 C10	F412 B4	
3446 C7	F413 C12	
3447 C8	F414 B2	
3448 C4	F415 B5	
3451 C4	F416 B7	
3452 B2	F417 B9	
3453 C6	F418 B5	
3454 A4	F419 B1	
3455 A4	F420 B7	
3456 A7	F421 B6	
3457 A8	F422 B1	
3458 C3	F423 C7	
3459 B4	F424 C8	
3460 C3	F425 C1	
3461 A10	F428 C1	
3462 A7	F430 C1	
3463 A8	F432 C1	
3464 A6	F433 C6	
3466 D7	F434 D4	
3468 D4	F435 D7	
3469 D8	F436 D8	
3470 E7	F437 D3	
3471 E5	F438 D7	
3472 E1	F439 E2	
3473 E2	F440 D10	
3475 E6	F441 E6	
3476 E12	F442 E6	
3477 E13	F443 E4	
3478 E4	F444 E11	
3479 F4	F445 E12	
3480 F7	F446 E13	
3481 F13	F447 E13	
3482 F5	F448 E1	
3483 F8	F449 E5	
3484 F7	F450 F6	
3486 G4	F451 F6	
3487 G7	F452 F8	
3488 G7	F453 E12	
3489 G4	F454 F13	
3490 G8	F455 E1	
3491 F12	F456 E10	
3492 F13	F457 F7	
3493 G5	F458 F10	

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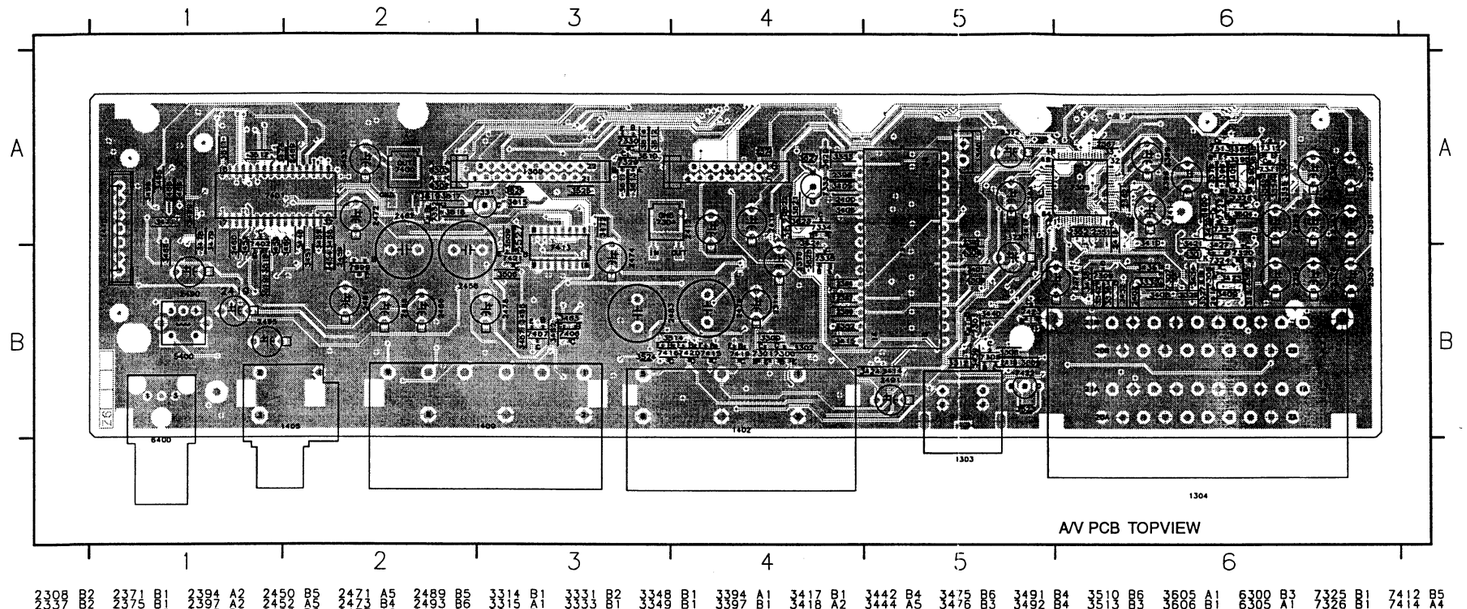
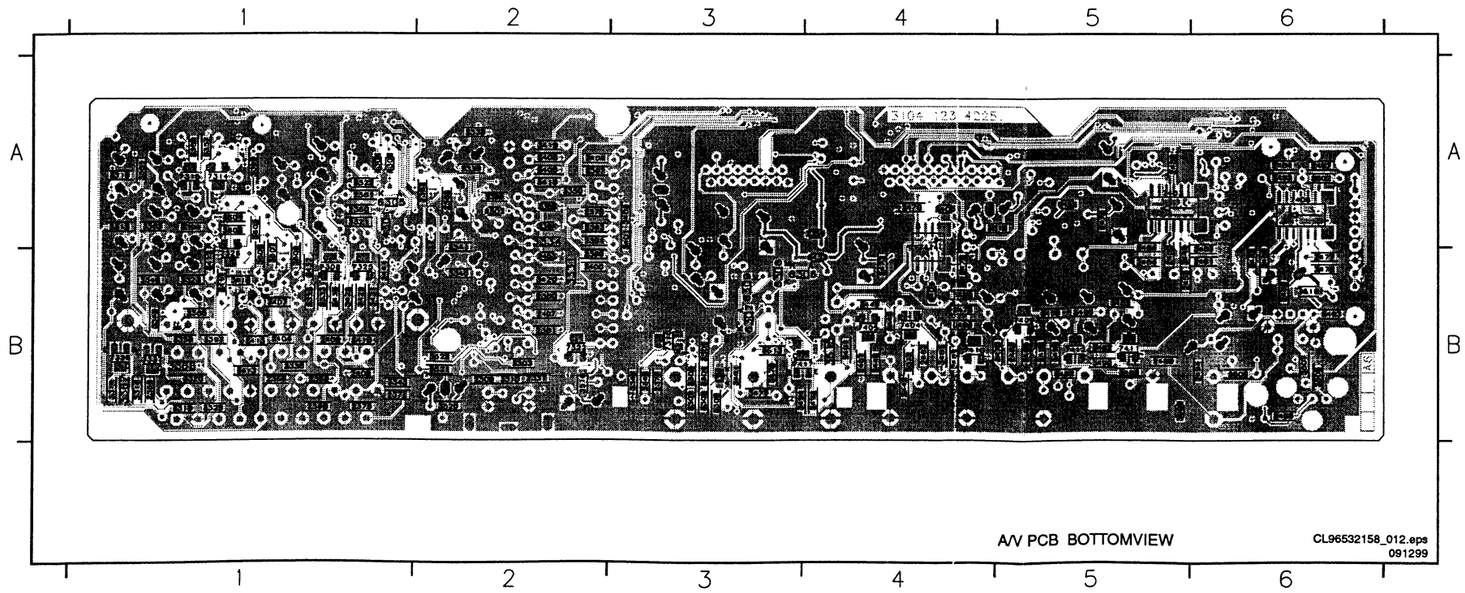
PB A/V MUX

1300	A3	2352	A6	2374	A4	2396	A6	2417	A5	2472	A2	3302	B4	3354	A6	3406	A4	3432	B6	3456	B3	3478	A1	3518	B1	3611	A3	3623	A4	6303	A2	7311	A6	7331	A3	7415	B4
1301	A4	2353	B6	2376	B5	2398	A4	2418	B5	2474	B3	3306	B5	3355	A6	3408	B6	3434	B6	3457	B3	3479	A1	3519	B1	3612	A3	3624	A4	6400	B1	7312	A6	7332	A2	7416	B3
1303	B5	2355	B6	2378	B6	2399	A6	2419	B1	2475	B2	3312	B5	3360	A6	3409	B6	3435	B6	3458	B1	3486	A1	3524	B5	3613	A3	3625	B4	7300	B4	7316	A6	7333	A4	7419	B4
1304	A6	2357	A6	2382	A6	2400	A4	2452	A2	2476	B4	3313	B6	3362	A6	3410	B6	3438	B6	3459	B2	3488	A1	3524	A3	3614	A3	3626	A3	7301	B4	7319	A6	7334	A4	7420	B4
1350	A5	2359	B6	2383	B6	2401	B5	2456	B3	2481	B2	3327	B6	3364	A6	3414	B5	3439	B5	3460	B1	3495	A1	3525	A3	3615	A3	3627	A4	7302	B5	7320	B6	7335	B4	7421	B3
1400	B2	2362	A6	2384	B4	2402	B6	2459	B2	2483	B5	3329	B6	3365	A6	3415	B4	3440	B5	3462	B3	3498	A1	3527	A3	3617	A2	3628	A4	7303	B5	7321	A6	7400	A2	7422	B5
1402	B4	2364	A5	2385	A6	2411	A6	2460	B1	2485	B2	3332	B6	3378	A6	3421	B6	3448	A2	3463	B1	3506	B3	3600	A6	3618	A2	4308	A5	7304	B5	7324	B6	7401	A1	7423	B5
1405	B2	2367	A6	2387	B4	2412	A4	2462	B2	2490	B1	3336	B6	3395	A6	3422	A6	3451	B5	3468	B1	3509	A3	3604	A6	3619	A2	4309	B5	7305	A6	7327	A6	7402	B1	7999	B2
1410	A1	2370	B4	2389	B4	2414	B6	2466	B2	2491	B5	3342	B6	3398	A6	3423	B6	3452	B1	3471	A1	3511	A1	3608	A6	3620	A4	5400	B1	7306	B6	7328	A6	7406	B3		
2314	B4	2372	A5	2392	A5	2415	A4	2468	A1	2495	B2	3352	B4	3402	A6	3424	B4	3454	B2	3472	A3	3512	A1	3609	B5	3621	A4	6301	B6	7307	B6	7329	A3	7407	B3		
2351	B6	2373	B5	2395	B6	2416	B6	2469	A1	3300	B4	3353	A4	3405	A4	3427	A6	3455	A2	3473	A1	3514	B4	3610	A3	3622	A4	6302	A2	7309	B6	7330	A3	7413	B3		



2308	B2	2371	B1	2394	A2	2450	B5	2471	A5	2489	B5	3314	B1	3331	B2	3348	B1	3394	A1	3417	B1	3442	B4	3475	B6	3491	B4	3510	B6	3605	A1	6300	B3	7325	B1	7412	B5
2337	B2	2375	B1	2397	A2	2452	A5	2473	B4	2493	B6	3315	A1	3333	B1	3349	B1	3397	B1	3418	A2	3444	A5	3476	B3	3492	B4	3513	B3	3606	B1	6305	A1	7326	B1	7414	A4
2354	A3	2377	B2	2403	B2	2455	B2	2477	A6	2494	B6	3318	B1	3334	B2	3350	A2	3398	A1	3419	A2	3445	B4	3477	B3	3493	A6	3515	B4	3607	A1	6306	B3	7330	B1	7417	B3
2358	B1	2379	A2	2404	B1	2457	B2	2478	B4	3301	B2	3319	B1	3335	B1	3351	A1	3400	B2	3420	A2	3446	B4	3480	B4	3494	A3	3516	B2	3616	A6	6307	B3	7331	B1		
2360	A1	2380	B2	2405	A2	2458	A5	2479	B4	3303	B2	3319	A1	3338	A2	3356	A1	3401	A3	3425	B1	3447	B4	3481	B3	3496	B5	3517	B4	3999	B6	6308	B3	7403	A5		
2361	A1	2381	B2	2406	A2	2461	B6	2480	A6	3304	B3	3320	B1	3339	A2	3357	A1	3403	A3	3429	B1	3454	A6	3482	A6	3497	B5	3520	B2	4301	A1	6309	B3	7404	B4		
2363	A1	2386	A2	2407	B2	2463	B4	2482	B5	3305	B3	3321	A1	3340	B2	3359	B1	3404	A2	3431	B1	3461	B4	3483	B4	3499	B5	3521	B2	4304	A1	7308	B1	7405	B4		
2365	A2	2388	A2	2408	B1	2464	B5	2484	A6	3307	B3	3322	A1	3341	B2	3363	B1	3407	B1	3433	B4	3464	B5	3484	B4	3502	A6	3522	B2	4305	A1	7310	B3	7408	A6		
2366	B1	2390	B2	2409	B1	2465	B6	2486	B5	3308	B3	3323	B1	3343	B1	3366	B1	3411	B1	3436	B1	3466	B5	3437	B5	3505	B6	3601	A1	4307	A2	7314	A1	7409	B5		
2368	B1	2391	A2	2410	B1	2467	B5	2487	A6	3309	B3	3326	B1	3345	B3	3367	B1	3412	B1	3437	A1	3469	B5	3438	B5	3507	B6	3602	A1	4400	A4	7315	A1	7410	B4		
2369	B1	2393	A2	2413	B1	2470	A4	2488	B6	3310	B2	3330	B1	3347	B3	3368	B1	3416	B1	3441	B1	3470	B4	3439	B5	3508	B6	3603	A1	4401	B4	7322	B2	7411	B5		



6.2 PLAYER SCRIPT

6.2.1 Purpose of Player Script

The Player script will give the opportunity to perform a test that will determine which of the DVD player's modules are faulty, to read the error log and error bits and to perform an endurance loop test. To successfully perform the tests, the DVD player must be connected to a tv set to check the output of a number of nuclei. For DVDv2b a multi-channel amplifier, a set of 6 boxes and an external video source are necessary to test. To be able to check results of certain nuclei, the player script expects some interaction of the user (i.e. to approve a test picture or a test sound). Some nuclei (e.g. nuclei that test functionality of the Basic Engine module) require that the DVD player itself is opened, to enable the user to observe moving parts and approve their movement visually. Only tests within the scope of the diagnostic software will be executed hence only faults within this scope can be detected.

.2 Contents of Player Script

The player script contains all nuclei that are useful on a DVD player that is connected to a tv-set and help to determine which module of the DVD player is faulty, as well as to read out the contents of the error logs.

6.2.3 Structure of Player Script

The player script consists of a set of nuclei testing the three hardware modules in the DVD player: the Display PWB, the Digital PWB and the Basic Engine.
Nuclei run by the player test need some user interaction; in the next paragraph this interaction is described. The player test is done in two phases:

1. Interactive tests: this part of the player test depends strongly on user interaction and input to determine nucleus results and to progress through the full test. Reading the error log and error bits information can be useful to determine any errors that occurred recently during normal operation of the DVD player.
2. The loop test will perform the same nuclei as the dealer test, but it will loop through the list of nuclei indefinitely.

6.2.4 Survey

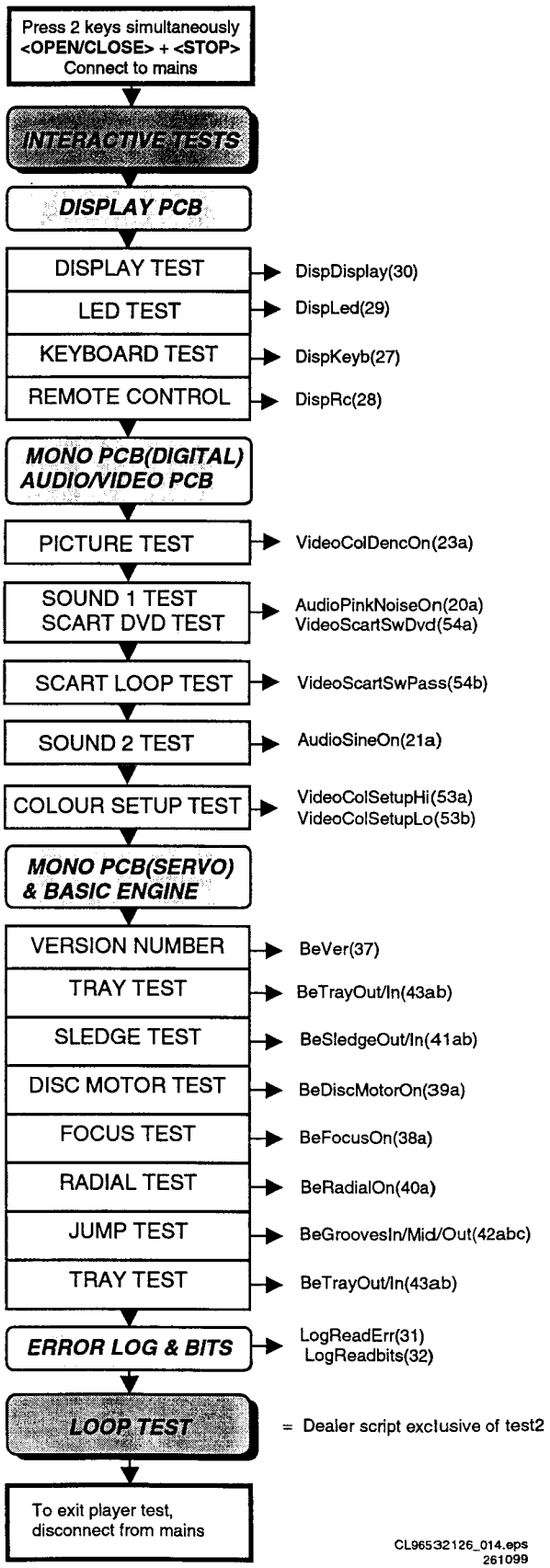


Figure 6-3

6.3 INTERACTIVE TESTS

6.3.1 DISPLAY PCB

DISPLAY TEST

The display test is performed by nucleus DispDisplay. By putting a series of test patterns on the local display, the local display is tested. To step through all different patterns, the user must either press PLAY (pattern is ok) or PAUSE (pattern was incorrect) to proceed to the next pattern. The display of patterns is continued in a cyclic manner until the user presses NEXT. If the user presses NEXT before all display patterns are tested, the DispDisplay nucleus will return TRUE (display test successful).

LED TEST

The LED(s) on the DVD player is (are) tested by nucleus DispLed. The user must check if the LED(s) is (are) lighted; if it is, press PLAY, if it is not, press PAUSE. By pressing NEXT the script will proceed to the next test. If the user presses NEXT before PLAY or PAUSE, the DispLed nucleus will return TRUE (LED test successful).

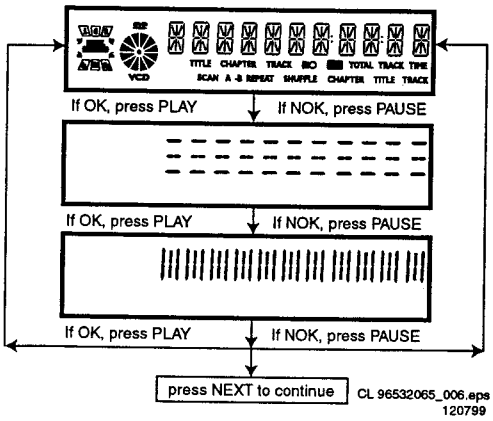


Figure 6-4

KEYBOARD TEST

The keyboard of the DVD player is tested by nucleus DispKeyb. The user is expected to press all keys on the local keyboard once. The code of the key pressed is shown on the local display (1 hexadecimal digit) immediately followed by a (hexadecimal) number indicating how many times that key has been pressed. Example of the local display during this test:

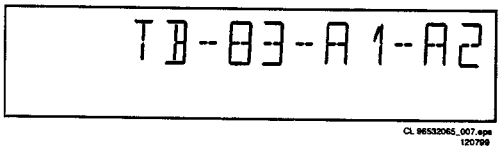


Figure 6-5

The key-codes displayed on the local display will scroll from right to left when the display gets full, the text "tb-" will remain on display.

key id.	key
0	PLAY
1	NEXT
2	PREVIOUS
3	PAUSE
4	STOP
5	OPEN/CLOSE
6	3D-SOUND
A	STANDBY

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261099

Figure 6-6

If any keys are detected more than once (due to hardware error), the key-code is displayed twice (or more), with the second digit increased by 1.
If the user does not press all keys minimally once (in any order), the DispKeys nucleus will return FALSE and cause an err the overall result of the player script.
The user can leave the keyboard test by pressing the NEXT key on the local display of the DVD player for at least one full second.
The result of the keyboard test is shown on local display as follows:

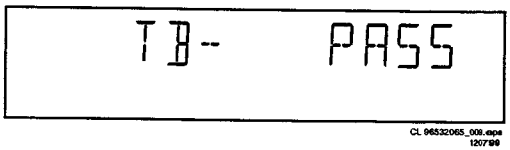

Figure 6-7

Or

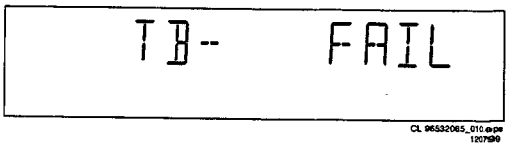

Figure 6-8

Pressing NEXT on the local keyboard again will proceed to the next text.

REMOTE CONTROL TEST

The remote control of the DVD player is tested by nucleus DispRc. The user must press any key on the remote control just once. The codes of the key pressed will be shown on the local display in hexadecimal format. Example:

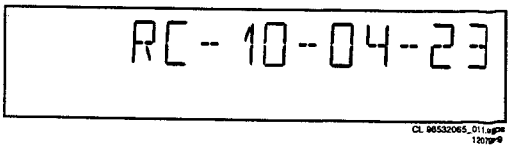

Figure 6-9

In this example 23 is the hexidecimal code of the pressed RC key. The user can leave the remote-control test by pressing NEXT on the local keyboard of the DVD player. The remote control test is successful if a code was received before the user pressed the NEXT key; pressing the NEXT key before pressing a key on the remote control gives an error in the remote control

test (note that the remote control test will also fail if a key on the remote control was pressed but no code was received). The remote control test does not check upon the contents of the received code, that is it will not be checked if the received code matches the key pressed. If desired, the user can manually check this code by using a code-table for the remote control key-codes.

RC Key id	Hexadecimal code
STANDBY	C
STOP	31
PLAY	2C
PLAY BACKWARD	2D
PAUSE	30
STEP FORWARD	F6
STEP BACKWARD	F5
FORWARD	28
FORWARD 4X	DF
FORWARD 8X	E0
BACKWARD	29
BACKWARD 4X	DE
BACKWARD 8X	DD
SLOW	22
SLOW 2	D8
SLOW BACKWARD	23
SLOW BACKWARD 2	DB
NEXT	20
PREVIOUS	21
CURSOR UP	58
CURSOR DOWN	59
CURSOR LEFT	5A
CURSOR RIGHT	5B
OK	5C
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
TOGGLE	C8
ANGLE	85
AUDIO	4E
SUBTITLES	4B
SUBTITLE ON/OFF	E3
ROOT MENU	54
TITLE MENU	71
MENU	D1
SETUP MENU	82
OSD ON/OFF	F
RETURN	83
RESUME	D7
SCAN	2A
SHUFFLE	1C
REPEAT	1D
A/B REPEAT	3D
TOGGLE SCART	43
OPEN/CLOSE	42
FTS	FB
KARAOKE	E4
OPTION	FA

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Figure 6-10

After pressing NEXT, the result of the remote control test is displayed on the local display of the DVD player as follows:

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Figure 6-11

Or

CL 96532065_014.eps 120799

Figure 6-12

Pressing NEXT on the local keyboard again will proceed to the next test.

6.3.2 MONO PCB DIGITAL PART

PICTURE TEST

The picture test is performed by putting a predefined picture (colour bar) on the display (nucleus VideoColDencOn) and asking the user for confirmation. The display will show the following message:

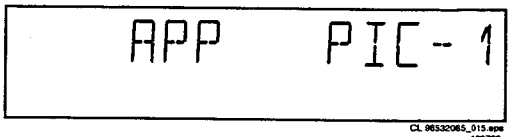

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Figure 6-13

By pressing PLAY the user confirms the test, pressing PAUSE will indicate the picture was invisible or incorrect. Pressing NEXT will proceed to the next test

SOUND 1 & SCART DVD TEST

The first soundtest is performed by starting a pink noise sound that needs confirmation from the user (nucleus AudioPinkNoiseOn); the display will show the following message very shortly:

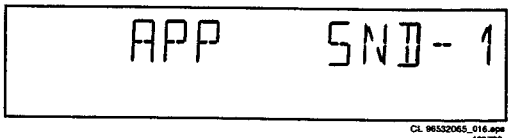

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Figure 6-14

This sound will only be audible from version cut3.1 of Sti5505(item7503 on mono board) onwards. After starting up sound 1, SCART loop-trough will be simultaneously active during this test. SCART loop-trough will be measured with the aid of an external video source.
When entering the SCART loop-trough, the local display indicates:

Figure 6-15

On the TV screen a colour bar (generated by nucleus VideoColDencOn) is visual and the internally generated pinknoise is audible. By pressing PLAY the user confirms the test, pressing PAUSE will indicate the sound was inaudible or incorrect. Pressing NEXT will proceed to the next test; if the user presses NEXT without pressing PLAY or PAUSE first, the result of this test will be TRUE (sound ok). By pressing the NEXT button there will be switched over to the external source, this must become now visible on the TV screen (using the SCART). The local display indicates:

Figure 6-16

The internally generated colour bar is still available on the CVBS and Y/C outputs. And the pinknoise-signal is still available on the cinch audio outputs. By pressing the PREV button, the internal generated colour bar becomes visual again. The test can be left by pressing the NEXT key for more than one second.

SOUND 2 TEST

The second soundtest is performed by producing a sine sound (nucleus AudioSineOn). The signal can be stopped by pressing the STOP-key. The display will show the following message:

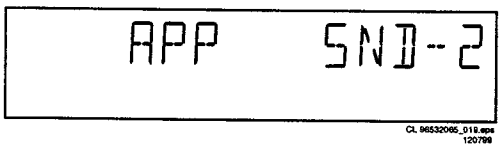


Figure 6-17

By pressing PLAY the user confirms the test, pressing PAUSE will indicate that something went wrong. Pressing NEXT will proceed to the next; if the user presses NEXT without pressing PLAY or PAUSE first, the result of this test will be TRUE (sound ok).

Colour set-up test

The colour set-up test is performed by putting the internally generated colour bar in diffferent settings on the TV screen. The first colour bar will be displayed in setting 1. The display will show the following message:

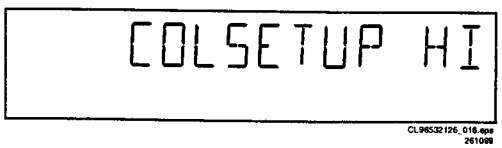


Figure 6-18

By pressing the NEXT button, you can go to the second setting. The local display indicates:

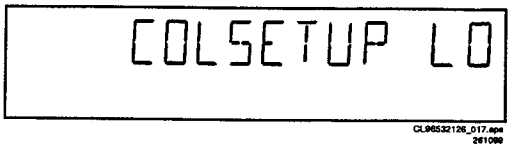


Figure 6-19

By pressing the PREVIOUS button, the colour bar with the first setting becomes visual again.
By pressing PLAY the user confirms the test, pressing PAUSE will indicate that something went wrong. The test can be left by pressing the NEXT key for more than one second; if the user presses NEXT without pressing PLAY or PAUSE first, the result of this test will be TRUE (colour set-up ok).

6.3.3 BASIC ENGINE

VERSION NUMBER

In the basic engine tests, the version number of the Basic Engine will be shown first, as the following example:

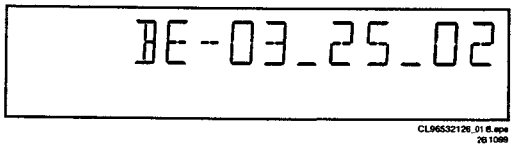


Figure 6-20

By pressing the NEXT key, the Basic Engine tests are started.

TRAY TEST

First, the tray is tested. The purpose of this test is also to give the user the opportunity to put a disc in the tray of the DVD player. Some tests on the Basic Engine require that a disc(e.g. DVD MPTD test disc) is present in the player. At the end of the Basic Engine tests this tray test will be repeated solely to enable the user to remove the disc in the tray. The local disp' will look as follows:

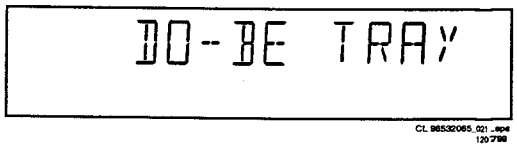


Figure 6-21

By pressing PLAY or PAUSE the user can toggle the position of the tray. Note that this test will not contribute to the test result of the Basic Engine. Pressing NEXT will proceed to the next test, after the tray has been closed (by the software) if it was open.

SLEDGE TEST(visual test)

The second Basic Engine test tests the sledge; the user can move the sledge as many times as desired by using PLAY (nucleus BeSledgeOut) and PAUSE (nucleus BeSledgeIn). Pressing NEXT on the local keyboard proceeds to the next test. Note that this test will not contribute to the test result of the Basic Engine. The local display will look as follows during the sledge test:

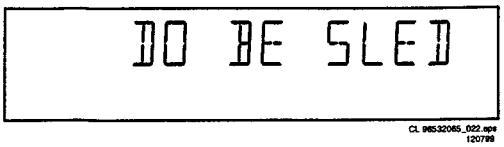


Figure 6-22

DISC MOTOR TEST(visual test)
The third Basic Engine test tests the disc motor (nucleus BeDiscMotorOn); the local display looks as follows:

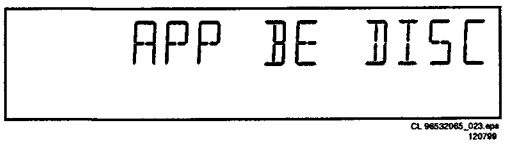


Figure 6-23

By pressing PLAY the user confirms that the disc motor is running; pressing PAUSE indicates the disc motor does not work. Pressing NEXT proceeds to the next test, after a reset of the disc motor (nucleus BeDiscMotorOff). If the user presses NEXT before pressing PLAY or PAUSE, the result of this test will be TRUE (disc motor is running).

FOCUS TEST(visual test)
The fourth Basic Engine test tests the focussing; first focussing is turned on by calling nucleus BeFocusOn. The display will look as follows:

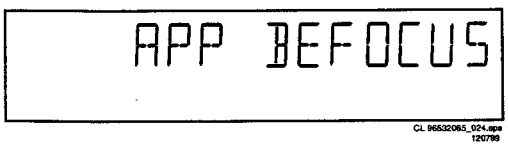


Figure 6-24

By pressing PLAY the user confirms that the focussing was succesful; pressing PAUSE indicates a focussing failure. Pressing NEXT proceeds to the next test after a reset of the focussing (nucleus BeFocusOff); if NEXT is pressed before PLAY or PAUSE, the result of this test will be TRUE (focus successful).

RADIAL TEST(visual & listening test)
The fifth Basic Engine test tests the radial functionality (nucleus BeRadialOn); the local display looks as follows:

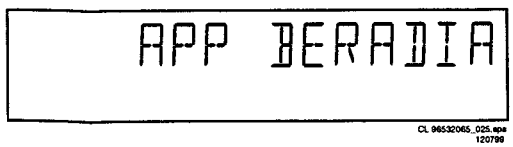


Figure 6-25

By pressing PLAY the user confirms that the radial function worked; pressing PAUSE indicates the function does not work. Pressing NEXT proceeds to the next test, after a reset of the radial (nucleus BeRadialOff). If the user presses NEXT before pressing PLAY or PAUSE, the result of this test will be TRUE (radial successful).

JUMP TEST(listening test)
The sixth and last Basic Engine test tests the jumping by calling nuclei BeGroovesIn, BeGroovesMid and BeGroovesOut. During this test, the local display looks as follows:

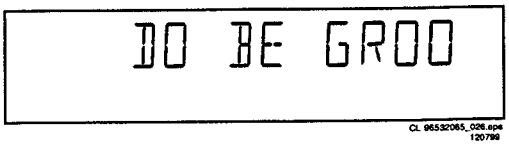


Figure 6-26

The user can switch between the three different types of groove settings by pressing PLAY (forward to next nucleus in the list In-Mid-Out) or PAUSE (backward in the list In-Mid-Out). This is done in a cyclic manner; note that this test will not contribute to the test result of the Basic Engine. Pressing NEXT proceeds to the next test, after the disc motor has been shut off with a call to nucleus BeDiscMotorOff.

TRAY TEST
As a last action for the Basic Engine tests, the tray test is repeated. The local display will look as follows:

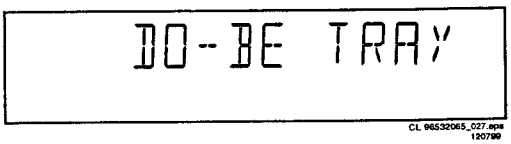


Figure 6-27

This test is meant to give the user the opportunity to remove the disc in the tray. The tray position can be toggled using the PLAY and PAUSE key. The tray will be closed (by the software, if it is open) before proceeding to the next test when the user presses the NEXT key.

ERROR LOG

Reading the error log and error bits information can be useful to determine any errors that occurred recently during normal operation of the DVD player. Reading the error log is done by nucleus LogReadErr. The display during the errorlog readout looks as follows :

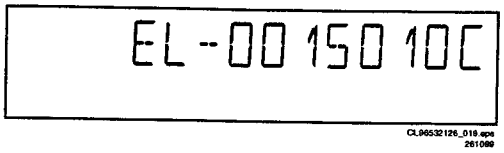


Figure 6-28

By pressing PLAY or PAUSE the user can move forward or backward (respectively) through the logged error codes. The highlighted number indicates which errorcode is currently on display (in the example above, errorcode number 4 is displayed). If "0000" is displayed at all positions, the error log is empty. Display of the logged errors is done in a cyclic manner. The errorcode with the lowest highlighted number is the most recent. By pressing NEXT on the local keyboard, the user can proceed to the next test.

ERROR BITS

Reading the error bits is done by nucleus LogReadBits. The display during the errorbits readout looks as follows:

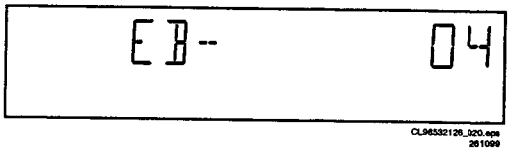


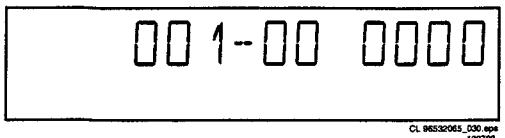
Figure 6-29

Only the set errorbits will be shown by their (decimal) number. Refer to the appropriate documentation for the explanation of each bit number. If the display only shows "EB-0", no error bits were set. By pressing NEXT the user can continue to the next test.
See table below:

Error log / bits table	Read ERROR LOG in player script	Read ERROR BITS in player script
Basic engine errors	Value:	Value:
Command to the Basic Engine not allowed in this stae or unknown command	150101	8
Parameter(s) from the command to the Basic Engine is not valid	150102	7
Sledge could not be moved to the ineer home position	150103	6
Focus failure	150104	5
Turntable motor could not be reached within timeout	150105	4
Radial servo could get on track on the disc	150106	3
PLL could not lock in the accessing or tracking state	150107	2
Subcode or sector information could not be read	150108	1
requested subcode could not be found	150109	16
Tray could not be closed or opened completely	15010A	15
TOC could not be read within timeout	15010B	14
The requested seek on the disc could not be executed	15010C	13
A requested lead is not on the disc	15010D	12
A non existing burst cutting area is requested	15010E	11
S2b communication error	1501F0	10
S2b communication error	1501F1	9
S2b communication error	1501F3	24
S2b communication error	1501F4	23
S2b communication error	1501F5	22
Digital PWB errors		
Communication error with the Sti 5505	90000	32
Communication error with the Sti 5505	90001	31
Disply processor errors		
Communication error with the display processor	190000	40

6.3.4 LOOP TEST

At the start of the loop test, the display will show the result of the interactive player test:



CL 96532065_030.eps 120799

Figure 6-30

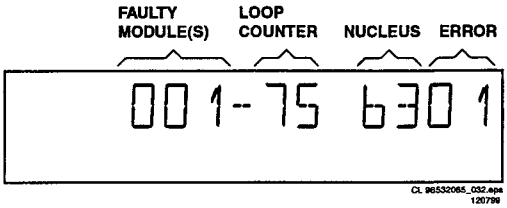
The left side of the display contains a 3-digit code, which can have a value between 000 and 111. These values are to be interpreted as follows:

Displayed Value	Indication for each module		
	Basic Engine	Mono PCB	Display PCB
000	ok	ok	ok
001	ok	ok	faulty
010	ok	faulty	ok
011	ok	faulty	faulty
100	faulty	ok	ok
101	faulty	ok	faulty
110	faulty	faulty	ok
111	faulty	faulty	faulty

CL 96532065_031.eps 120799

Figure 6-31

The loop test will perform the same nuclei as the dealer test, but it will loop through the list of nuclei indefinitely. The display of the DVD player will display not only the three digits indicating correct/faulty modules and the last found error code (as mentioned, faults are detected as far as they can be within the scope of the diagnostic software), but also a loop counter indicating how many times the loop has been gone through. Example:



CL 96532065_032.eps 120799

Figure 6-32

The number after the hyphen indicates the number of times the loop test has been performed; the 4 digits at the right side of the display show the last error that was found when running the loop test: the leftmost two digits of this code indicate which nucleus resulted in a fault; the rightmost two digits refer to the faultcode within that nucleus. For further explanation of this error code, see list of error codes below.

ERROR CODES LOOP TEST

ERROR CODE	NUCLEUS NUMBER	ERROR DESCRIPTION
0601	6	Calculated checksum of FLASH is not correct
0901	9	The DVD DRAM is faulty
1101	11	I2C bus busy before start
1102		NVRAM access time-out
1103		No NVRAM Acknowledge
1104		NVRAM reply time-out
1201	12	I2C bus busy
1202		I2C bus not working
1203		Slave controller not responding
1204		Slave response is not correct
1301	13	Parity error from basic engine to serial
1302		Parity error from serial to basic engine
1303		No communication between serial and basic engine
1304		Communication time-out error
1601	16	The SDRAM is faulty
5201	52	I2c bus busy
5202		I2c bus not working
5203		Colour setup controller not responding
5204		Colour setup controller response not correct
5401	54	I2c bus busy
5402		I2c bus not working
5403		Scart switch controller not responding
5404		Scart switch controller response not correct

CL96532126_021.eps 261099

Figure 6-33

7. Servicing DVD module and MONO board

7.1 Replacing DVD module

The DVD module(Basic Engine and the mono board) has to be exchanged completely in case of failure. A new module for Xemix can be ordered with codenumber 291-90350.969 for Region Code 4 (Australia), 291-90350.970 for Region Code 5 (Russia), and 291-90350.968 for all European countries Region Code 2.
A new module for Auro can be ordered with codenumber 291-90350.988 for Region Code 4 (Australia), 291-90350.989 for Region Code 5 (Russia),and 291-90350.987 for all European countries Region Code 2.
Return the defective unit complete assembled in original package to Loewe Consumer Service in Kronach.

7.2 Reprogramming of new mono boards.

Caution

This information is confidential and may not be distributed. Only a qualified service person should reprogram the mono board.

After replacement of the mono board, all the customer settings and also the region code will be lost.
Reprogramming of the mono board will put the player back in the state in which it has left the factory, i.e. with the default settings and the allowed region code.

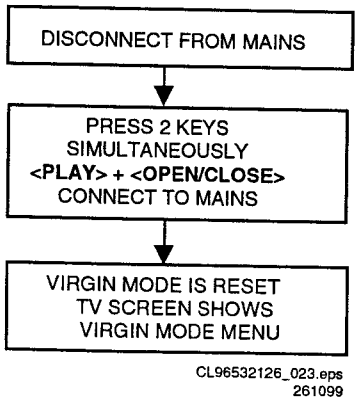
Reprogramming is limited to 25 times.
When the counter reaches 25, reprogramming is not possible anymore.
Reprogramming will be done by way of the remote control.
Put the player in stop mode, no disc loaded.
Press the following keys on the remote control:
<PLAY> followed by numerical keys *<2> <7> <4>*
The display shows: "- - - - - - - - - - -"
Press now successively the following keys :
LDV 501L/001 *<0><0><1> <0><0><0><0><0><0><0><0><0>*
LDV 501U/001 *<0><0><1> <0><0><0><0><0><0><0><0><0>*
LDV 502L/001 *<0><0><2> <0><0><0><0><0><0><0><0><0>*
LDV 502U/001 *<0><0><2> <0><0><0><0><0><0><0><0><0>*
Press *<PLAY>* again.
The TV screen will become BLUE during a short time to confirm that the digital board has been reprogrammed, then the set goes to standby mode.

CL96532158_016.eps
170200

Figure 7-1

7.3 Reset of Virgin Mode

After the player has been powered up for test by the dealer, it would have gone through the Virgin Mode. It is possible to reset the settings made during that mode before the delivery of player to the customer. This can be done as shown in the following diagram:

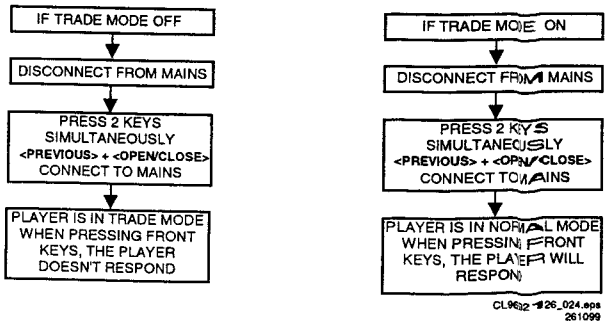


CL96532126_023.eps
261099

Figure 7-2

TRADE MODE

When the player is in Trade Mode, the player cannot be controlled by means of the front key buttons, but only by means of the remote control.



CL96532126_024.eps
261099

Figure 7-3

8. Test instructions Display board

8.1 Display board

8.1.1 Introduction

These test instructions are written for all versions of the display PCB 396-90348.973.
The contents of the PCB can be split up into next blocks:

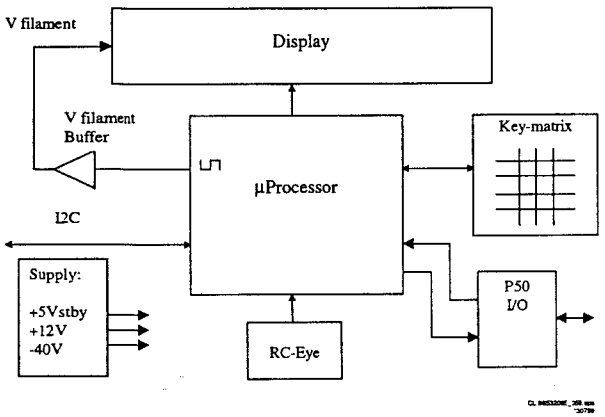


Figure 8-1

8.1.2 Functionality description:

The essential component of the display PCB is the uP (slave). This slave works on an 8MHz resonator and has a reset circuit that is triggered by the +5Vstby. After the reset pulse, the standby control line will release the reset of the host uP. This host uP will then initialise the slave. In addition, when going to stand-by, the slave will put the host uP in reset. When the slave receives the right IR or key code to leave the standby mode, the reset of the host uP will be released.
Other slave functions are:

- Square signal generator to generate the filament voltage, which is required for an AC FTD.
- Generates the grid and segment scanning for the FTD.
- Generates a scanning grid for the keys (separated from display scanning).
- Has inputs for RC (RC5 and RC6) and P50 (P50 controller is built in).

8.1.3 General

- Oscilloscope measurements have been carried out using a Philips PM3392A.
- Impedance of measuring-equipment should be > 1M(.
- To do correct measurements we recommend to use supply 396-90350.937, which is used in all "second generation B" DVD-players. Make sure that the main 3.3V has a 0.7A load.

8.1.4 Reset

Check next reset timing with an oscilloscope at pin 10 of the (processor.

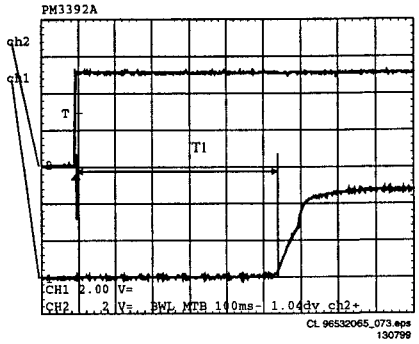


Figure 8-2

Timing: 400msec < T1 > 700msec.
CH1: +5Vstby voltage at power on.
CH2: Voltage at pin 10.

8.1.5 Display steering

Check next timing and level for all grid-lines (G1 r G14).

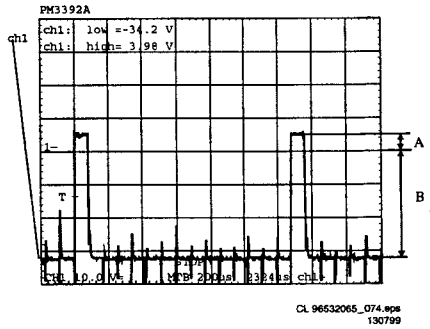


Figure 8-3

1. Check level A: +4V5 (10% for grid lines 1 => 11
2. Check level A: +4V0 (10% for grid lines 12 => 14
3. Check level B: -33V (10%
4. Check timing and levels of segment-lines P1 r P10:

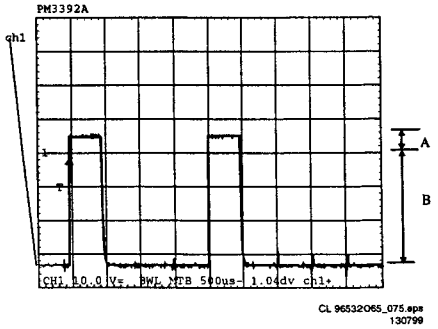


Figure 8-4

Level A:+4V5 (10%
Level B:-33V (10%
The data on these segment lines depend on the characters that are displayed.
The characters can be set by sending I2C commands to the display.
See the Slave URS how to send a display command.

8.1.6 Key-matrix

Connect a extra 10k(pull-up to pin 36 en 37 of the (P and check next matrix scanning at these pins.

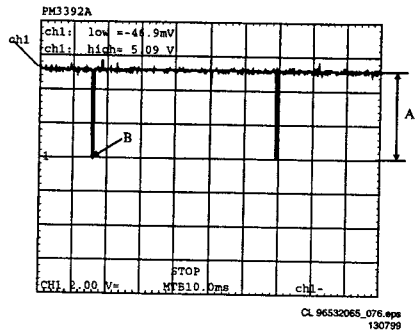


Figure 8-5

Level A: 5.0V (7%
Level B: 0V (200mV
Check matrix scanning from pin 26 until 33 of the (P.
The results should be the same as the diagram above.

8.1.7 I.R. receiver

Check at pin 23 of the (P if this line switches from low (< 0.3V) to high (> 4.5V), while pressing a key on a Loewe DVD remote control.

8.1.8 Karaoke interface

The karaoke interface (4 lines) is a single direction communication.
This means that it consists of four uP output lines.
The interface can be checked by setting or resetting these output-ports via the I2C bus.
Send next command via the I2C bus:

Address	: 0x70
Command byte	: 0x24
Data byte	: xxxxabcd
Wherea	: a = Karaoke reset.
	: b = Karaoke data.
	: c = Karaoke clock.
	: d = Karaoke strobe.

8.1.9 P50 interface

P50 is a bi-directional serial interface, which is used for communication between video equipment. For European sets, this communication goes via pin 10 of the scart-bus. In other regions, it can be a cinch bus at the back of the set.

1. Keep the uP in reset by short-circuiting emitter and collector of transistor 7108, via resistor 3100 and 3104 transistor 7101 is switched on.
2. Check the voltage at the P50 output connector 1118-5: < 200mV.

When the reset is released the uP output-pin becomes low and transistor 7101 is switched off.

1. Check the voltage at the P50 output connector 1118-5: 4V9 (5%.
2. Check also the uP P50 input (uP pin 20): 5V (5%.
3. Connect the P50 line (connector 1118-5) to ground.
4. Check again the uP P50 input (uP pin 20): <0V3.

9. Current mode power supply

9.1 Blockdiagram

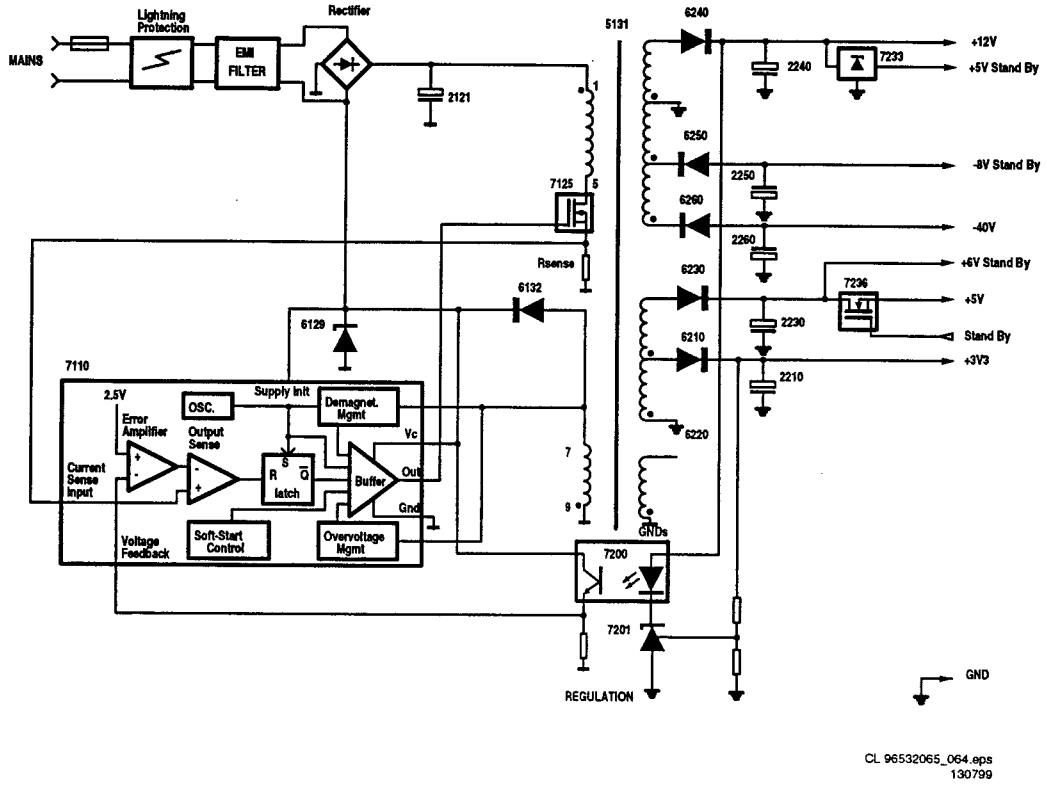


Figure 9-1

9.1.1 Function description of the current mode power supply

MOSFET 7125 is used as a power switch controlled by the controller IC 7110. When the switch is closed, energy is transferred from the mains into the transformer. This energy is then supplied to the load when the switch is opened. By control of the switched-on time, the energy transferred in each cycle is regulated so that the output voltages are independent of load or input voltage variations. The controlling device MC44603P is an integrated pulse width modulator. A clock signal initiates power pulses at a fixed frequency. The termination of each output pulse occurs when an analogue of the inductor current reaches a threshold established by the error signal. In this way the error signal actually controls the peak inductor current on cycle-by-cycle basis.

9.2 General description of MC44603

The MC44603 is an enhanced high performance controller that is specifically designed for Off-line and dc-to dc converter applications. This device has the unique ability of automatically changing operating modes if the converter output is overloaded., unloaded, or shorted. The MC44603 has several distinguishing features when compared to conventional SMPS controllers. These features consist of a foldback facility for overload protection, a standby mode when the converter output is slightly loaded, a demagnetisation detection for reduced switching stresses on transistor and diodes, and a high current totem pole output ideally suited for driving a power MOSFET. It can also be used for driving a bipolar transistor in low power converters. It is optimised to operate in discontinuous mode but can also operate in continuous mode. Its advanced design allows use in current mode or voltage mode control applications.

9.3 Pin connections

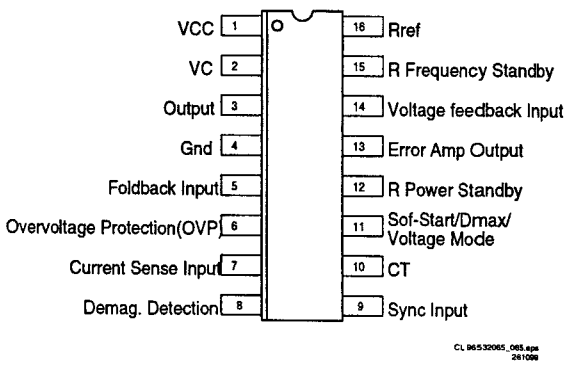


Figure 9-2

9.4 Blockdiagram of MC44603

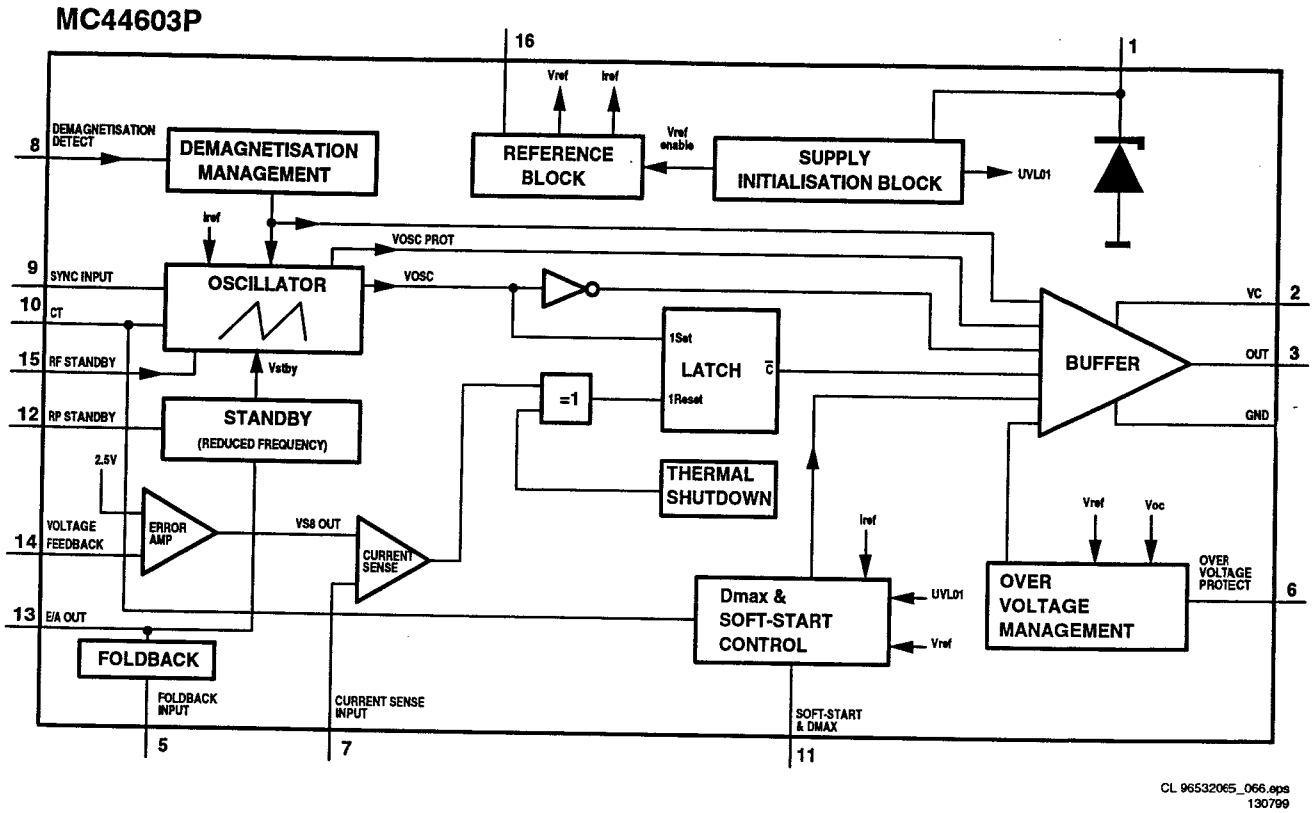


Figure 9-3

9.5 Pin function description

Pin function description

Pin	Name	Description
1	VCC	This pin is the positive supply of the IC. The operating voltage range after start-up is 9.0 to 14.5 V.
2	VC	The output high state (VOH) is set by the voltage applied to this pin.
3	Output	Peak currents up to 750 mA can be sourced or sunk, suitable for driving either MOSFET or Bipolar transistors.
4	Gnd	The groundpin is a single return, typically connected back to the power source.
5	Foldback Input	The foldback function provides overload protection.
6	Overvoltage Protection	When the overvoltage protection pin receives a voltage greater than 2.5V, the device is disabled and requires a complete restart sequence.
7	Current Sense Input	A voltage proportional to the current flowing into the power switch is connected to this input.
8	Demagnetisation Detection	A voltage delivered by an auxiliary transformer winding provides to the demagnetisation pin an indication of the magnetisation state of the flyback transformer. A zero voltage detection corresponds to complete core saturation.
9	Synchronisation Input	The synchronisation input pin can be activated with either a negative pulse going from a level between 0.7V and 3.7V to Gnd or a positive pulse going from a level between 0.7V and 3.7V up to a level higher than 3.7V. The oscillator runs free when Pin 9 is connected to Gnd.
10	C_T	The normal mode oscillator frequency is programmed by the capacitor CT choice together with the Rref resistance value. CT, connected between Pin 10 and Gnd, generates the oscillator sawtooth.
11	Soft-Start/Dmax/Voltage-Mode	A capacitor, resistor or a voltage source connected to this pin limits the switching duty-cycle. This pin can be used as a voltage mode control input. By connecting Pin 11 to Ground, the MC44603 can be shut down.
12	RP Standby	A voltage level applied to the RP Standby pin determines the output power level at which the oscillator will turn into the reduced frequency mode of operation(i.e. standby mode). An internal hysteresis comparator allows to return in the normal mode at a higher output power level.
13	E/A Out	The error amplifier output is made available for loop compensation.
14	Voltage Feedback	This is the inverting input of the Error Amplifier. It can be connected to the switching power supply output through an optical (or other) feedback loop.
15	RF Standby	The reduced frequency or standby frequency programming is made by the RF Standby resistance choice.

Figure 9-4

9.6 Operating description

The input voltage Vcc(pin 1) is monitored by a comparator with hysteresis, enabling the circuit at 14.5V and disabling the circuit below 7.5V. The error amplifier compares a voltage Vfb(pin 14) related to the output voltage of the power supply, with an internal 2.5V reference. The current sense comparator compares the output of the error amplifier with the switch current Isense(pin 7) of the power supply. The output of the current sense comparator resets a latch, which is set every cycle by the oscillator. The output stage is a totem pole, capable of driving a MOSFET directly.

9.6.1 Start-up sequence

t1: Charging the capacitor at Vcc
C2129 will be charged via R3123 and R3134, C2133 and C2111 via R3129. The output is switched off during t1.

t2: Charging of output capacitors
When the input voltage of the IC exceeds 14.5V, the circuit is enabled and starts to produce output pulses. The current consumption of the circuit increases to about 17mA, depending on the external loads of the IC. At first, the capacitor at the Vcc pin will discharge because the primary auxiliary voltage, coming from winding 7-9 is below the Vcc voltage. At some moment during t2, the primary auxiliary voltage reaches the same level as Vcc. The Vcc voltage is now determinated by this primary auxiliary voltage.

t3: regulation
The output voltage of the power supply is in regulation

t4: overload
When the output is shortened, the supply voltage of the circuit will decrease and after some time drop below the lower threshold voltage. At that moment, the output will be disabled and the process of charging the Vcc capacitor starts again. If the output is still shorted at the next t2 phase, the complete start-and stop sequence will repeat. The power supply comes in a hiccup mode

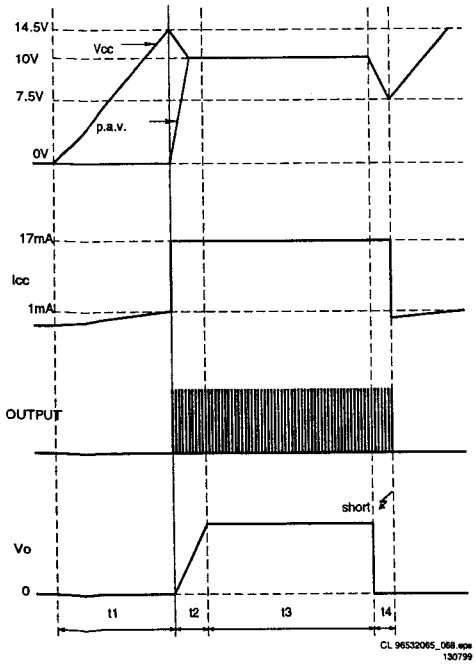


Figure 9-5 Start-up sequence

9.7 Regulation

Figure B shows the most relevant signals during the regulation phase of the power supply.
The oscillator voltage ramps up and down between V1 and V2. The voltage at the current sense terminal is compared every cycle with the output of the error amplifier Vcomp. The output is switched off when the current sense level exceeds the level at the output of the error amplifier.

1. TimeON phase : A drain current will flow from the positive supply at pin 1 of the transformer through the transformer's primary winding, the MOSFET and Rsense to ground. As the positive voltage at pin 1 of the transformer is constant, the current will increase linearly and create a ramp dependent on the mains voltage and the inductance of the primary winding. A certain amount of energy is stored in the transformer in the form of a magnetic field. The polarity of the voltages at the secundary windings is such that the diodes are non-conducting.
2. TimeDIODE phase : When the MOSFET is switched off, energy is no longer supplied to the tranformer. The inductance of the tranformer now tries to maintain the current which has been flowing through it at a constant level. The polarity of the voltage from the transformer therefore becomes reversed. This results in a current flow through the tranformer's secondary winding via the diodes, electrolytic capacitors and the load. This current is also ramp shaped but decreasing.
3. TimeDEAD phase : when the stored energy has been supplied to the load, the current in the secondary windings stops flowing. At this point the drain voltage of the MOSFET will drop to the voltage of C2121 with a ringing caused by the Drain-Source capacitance with the primary inductance.

The oscillator will start a next cyclus which consists of the described three phases. The time of the different phases depends on the mains voltage and the load.
TimeDEAD is maximum at an input of 400VDC and minimum load, it will be zero at an input of 100VDC and overload.

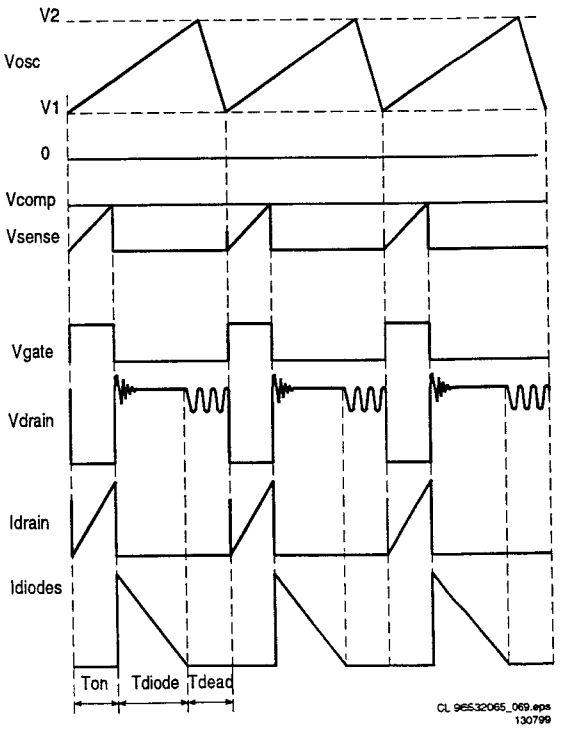
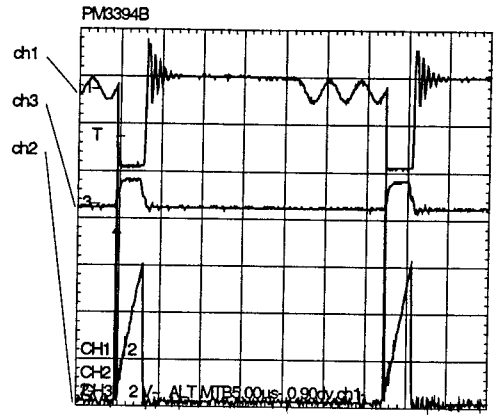
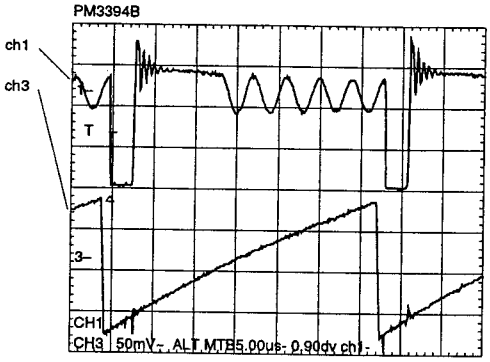


Figure 9-6 Regulation

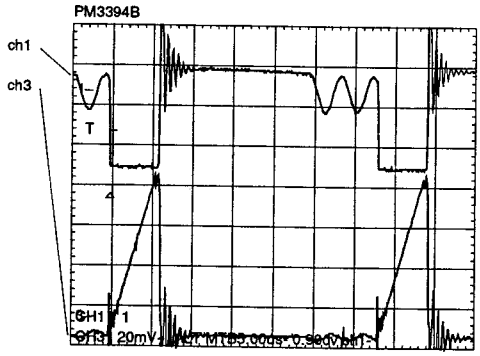
9.8 Oscillograms



ch1 : Drain voltage
ch2 : Drain current
ch3 : Gate voltage



ch1 : Drain voltage
ch2 : Oscillator voltage



ch1 : Drain voltage
ch3 : Sense voltage

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Figure 9-7

9.9 Circuit description

9.9.1 Input circuit

The input circuit consists of a lightning protection circuit and an EMI filter.
The lightning protection comprises R3120, gasarrestor 1125 and R3124. The EMI filter is formed by C2120, L5120, C2125 and C2126. It prevents inflow of noises into the mains.

9.9.2 Primary rectifier/smoothing circuit

The AC input is rectified by rectifier bridge 6120 and smoothed into C2121. The voltage over C2121 is approximately 300V. It can vary from 100V to 390V.

9.9.3 Start circuit and Vcc supply

This circuit is formed by R3123, R3134, C2129, D6129, R3129, R3111, C2133 and C2111.
When the power plug is connected to the mains voltage, the stabilised voltage over D6129(24V) will charge C2133 via R3129. When the voltage reaches 14.5V across C2111, the control circuit of IC7110 is turned on and the regulation starts. During regulation, Vcc of IC7110 will be supplied by the rectified voltage from winding 7-9 via R3135, D6132 and C2133.

9.9.4 Control circuit

The control circuit exists of IC7110, C2102, 2104, 2107, 2109, 2110, R3102, 3103, 3104, 3107, 3108, 3109 and 3110. The frequency of the oscillator is defined by C2102 and R3110.
Power switch circuit
This circuit comprises MOSFET 7125, Rsense 3126, 3127 and 3128, R3125 , C2127, L5125, R3112 and R3113. R3125 is a pull-down resistor to remove static charges from the gate of the MOSFET.

9.9.5 Regulation circuit

The regulation circuit comprises opto-coupler 7200 which isolates the error signal from the control IC on the primary side and a reference component 7201. The TL431(7201) can be represented by two components:

- a very stable and accurate reference diode
- a high gain amplifier

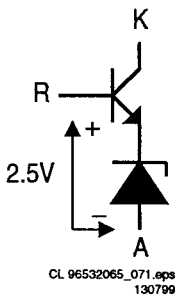


Figure 9-8

TL431 will conduct from cathode to anode when the reference is higher than the internal reference voltage of about 2.5V. If the reference voltage is lower, the cathode current is almost zero. The cathode current flows through the LED of the opto-coupler. The collector current of the opto-coupler flows through R3106, producing an error voltage, connected to voltage feedback pin 14 of IC7110.

9.9.6 Demagnetisation

The auxiliary winding (7-9) voltage is used to detect magnetic saturation of the transformer core and connected via R3101 to pin 8 of IC7110. During the demagnetisation phase, the output will be disabled.

9.9.7 Overvoltage protection circuit

This circuit consist of D6114, C2114, R3115 and R3116.
When the regulation circuit is interrupted due to an error in the control loop, the regulated output voltage will increase (overvoltage). This overvoltage is sensed on the primary winding 7-9.
When an overvoltage longer than 2.0 (s is detected, the output is disabled until VCC is removed and then re-applied. The power supply will come in a hiccup mode as long as the error in the control loop is present.

9.9.8 Secondary rectifier/smoothing circuit

There are 5 rectifier/smoothing circuits on the secondary side. Each voltage depends on the number of windings of the transformer.
The +5Vstby power supply is derived from the +12Vstby by voltage regulator 7233, C2233 and L5233.
The -5V voltage is regulated by voltage regulator 7259 and will be switched off via D6256, T7256 and T7255 during standby (control signal STAND BY is high). When jumper 4250 is mounted instead of this circuit, a supply voltage -8Vstby will be present at pin 9 of connector 0205.
The +5V power supply is derived from +6Vstby by the loader-up circuit formed by MOSFET 7236, reference component 7237, R3236, R3237 and C2239. This voltage will be switched off during STAND BY via T7235.
The 3V3 power supply is regulated by the control loop (7201, 7200, 7110) of the switched mode PSU.

10. List of abbreviations

SIGNAL NAME	DESCRIPTION
0/6/12	Scart switch control signal A/V board. 0V : loop through (AUX to TV), 6V : play 16:9 format, 12V : play 4:3 format
B	Buffered Video input Blue from DVD monoboard
B/C SWITCHING	Circuit for bi-directional switching of Blue and Chroma on dual scart. Switches between virtual ground (75 ohm) and video output buffer.
BC_AUX	Blue or Chroma input from AUX-scart
BC_TV	Blue or Chroma output to TV-scart
BO	Blue output from RGB video processor
BOUT_TV	Blue output to TV-scart
C_ENC	Buffered Chroma input from DVD monoboard
C_OUT	Chroma output to S-Video output buffer
CENTER	Control signal from monoboard to switch STEREO OUTPUT cinch to mono.
CVBS	Buffered Composite video input from DVD monoboard
DC_OFF	Control signal to switch off -8Vstby and +12Vstby during standby
DIG_OUT	Digital out
FBIN_AUX	Fast blanking input from AUX-scart
FBOUT_TV	Fast blanking output to TV-scart
G	Buffered Video input Green from DVD monoboard
GIN_AUX	Video input Green from AUX-scart
GO	Green output from RGB video processor
GOUT_TV	Video output Green to TV-scart
HP_L	Headphone left output
HP_R	Headphone right output
HSYNC	Horizontal synchronization for RGB video processor.
KILL	Kill control signal for audio outputs and for soft mute of DAC
LIN_AUX	Audio input left from AUX-scart
LIN_TV	Audio input left from TV-scart
LOUT_AUX	Audio output left to AUX-scart
LOUT_TV	Audio output left to TV-scart
LRCLK	Left/Right clock
P50	Bi-directional interface used for communication between video equipment
PCM_CLK	Audio system clock for DAC
PCM_OUT[0:2]	Audio serial output data
R	Buffered Video input Red from DVD monoboard
RCIN_TV	Red or Chroma input from TV-scart
RCOUT_TV	Red or Chroma output to TV-scart
RIN_AUX	Audio input right from AUX-scart
RIN_TV	Audio input right from TV-scart
RO	Red output from RGB video processor
ROUT_AUX	Audio output right to AUX-scart
ROUT_TV	Audio output right to TV-scart
SCL	I2C bus clock
SCLK	Audio serial bit clock
SDA	I2C bus data
ST_L	Stereo left output (not used)
ST_R	Stereo right output (not used)
STEREO_L	Audio cinch output left
STEREO_MUTE	Control signal from monoboard to switch on stereo mute circuit (option)
STEREO_R	Audio cinch output right
Y_ENC	Buffered Luma input from DVD monoboard
Y_OUT	Luma output to S-Video output buffer
YCVBSIN_AUX	Luma or CVBS input from AUX-scart
YCVBSIN_TV	Luma or CVBS input from TV-scart
YCVBSOUT_AUX	Luma or CVBS output to AUX-scart
YCVBSOUT_TV	Luma or CVBS output to TV-scart

11. IC-descriptions

SGS-THOMSON MICROELECTRONICS

STV6410

AUDIO/VIDEO SWITCH MATRIX

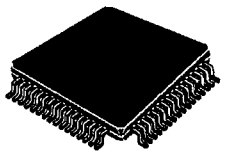
- I^2C BUS CONTROL
- STANDBY MODE

VIDEO SECTION

- 5 CVBS INPUTS, 4 CVBS OUTPUTS (ONE WITH SELECTABLE CHROMA TRAP FILTER)
- 5 Y/C INPUTS, 3 Y/C OUTPUTS
- 6dB GAIN ON ALL CVBS/Y AND C OUTPUTS
- 1 Y/C ADDER
- 2 RGB/FB INPUTS, 1 RGB/FB OUTPUT WITH 6dB ADJUSTABLE GAIN
- VIDEO MUTING ON ALL THE OUTPUTS
- 3 SLOW BLANKING INPUTS/OUTPUTS
- SYNC BOTTOM CLAMP ON ALL CVBS/Y AND RGB INPUTS, AVERAGE ON C INPUTS
- BANDWIDTH : 15MHz
- CROSSTALK : 60dB Typ.

AUDIO SECTION

- 5 STEREO INPUTS, 4 STEREO OUTPUTS (TWO WITH LEVEL ADJUSTMENT)
- MONO SOUND OUTPUT
- MONO SOUND CAPABILITY ON TV OUTPUTS
- AUDIO MUTING ON ALL THE OUTPUTS



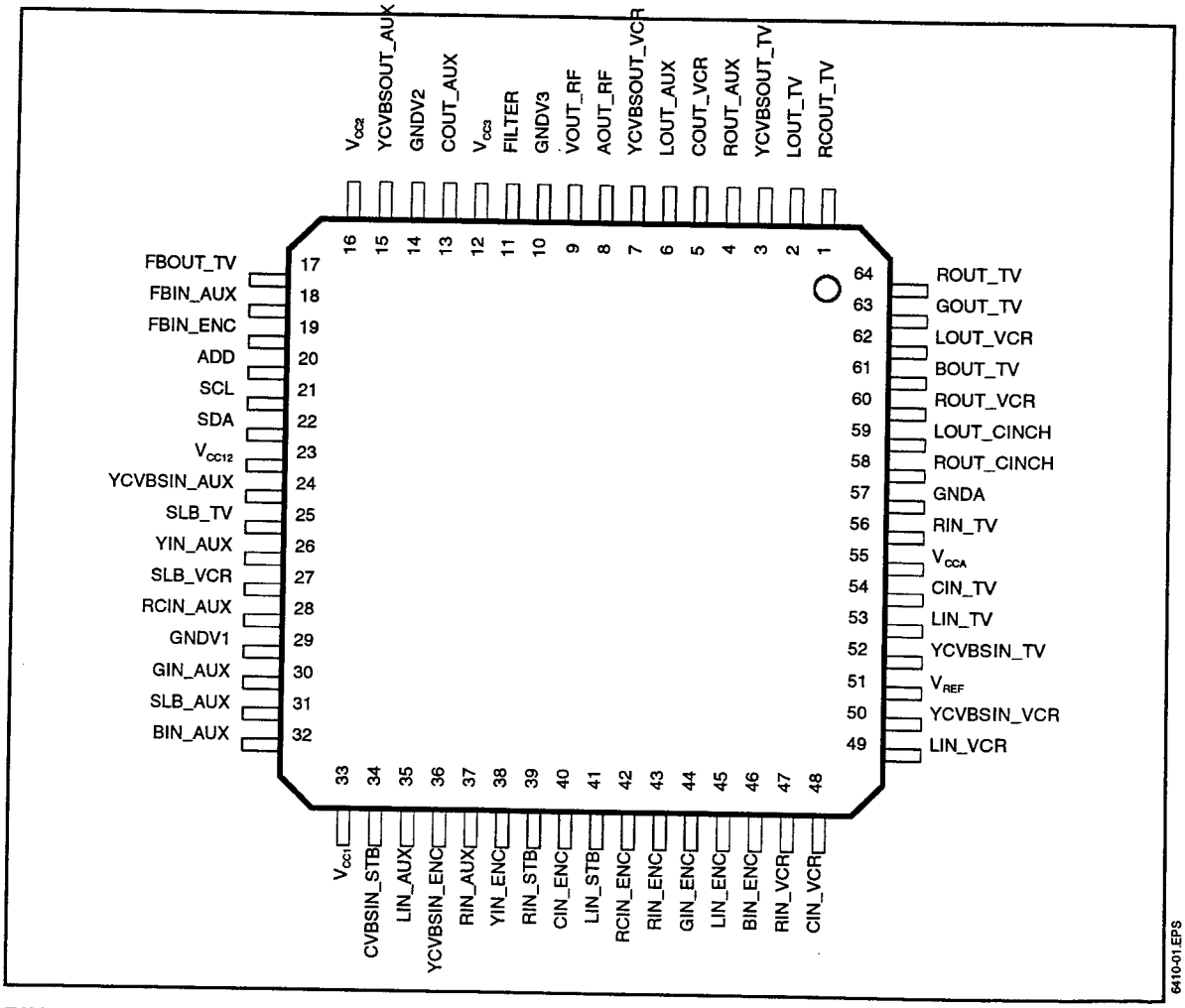
TQFP64
(Plastic Quad Flat Pack)

ORDER CODE : STV6410D

DESCRIPTION

The STV6410 is a highly integrated I^2C bus-controlled audio and video switch matrix, optimized for use in digital set-top box applications. It provides all the audio and video routings required in a full three scart set-top box design. It is also fully pin compatible with STV6411, the two scart version.

PIN CONNECTIONS



PIN LIST

Pin Number	Symbol	Description
1	RCOUT_TV	Red/chroma Output, to TV Scart
2	LOUT_TV	Audio Left Output, to TV Scart
3	YCVBSOUT_TV	Y/CVBS Output, to TV scart
4	ROUT_AUX	Audio Right Output, to AUX Scart
5	COUT_VCR	Chroma Output, to VCR Scart
6	LOUT_AUX	Audio Left Output, to AUX Scart
7	YCVBSOUT_VCR	Y/CVBS Output, to VCR Scart
8	AOUT_RF	Audio (L+R) Output to RF Modulator
9	VOUT_RF	Video (CVBS) Output to RF Modulator
10	GNDV3	Video Switches Ground 3
11	FILTER	Chroma Trap Filter
12	V_{CCV3}	Video Switches Supply 3 (8V)
13	COUT_AUX	Chroma Output, to AUX Scart
14	GNDV2	Video Switches Ground 2
15	YCVBSOUT_AUX	Y/CVBS Output, to AUX Scart

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PIN LIST (continued)

Pin Number	Symbol	Description
16	V_{CCV2}	Video Switches Supply 2 (8V)
17	FBOUT_TV	Fast Blanking Output, to TV Scart
18	FBIN_AUX	Fast Blanking Input, from AUX Scart
19	FBIN_ENC	Fast Blanking Input, from Encoder
20	ADD	I2C Bus IC Address Programmation
21	SCL	I2C Bus Clock
22	SDA	I2C Bus Data
23	V_{CC12}	Slow Blanking Power Supply (12V)
24	YCVBSIN_AUX	Y/CVBS Input from AUX Scart
25	SLB_TV	Slow Blanking Input/Ouput from TV
26	YIN_AUX	Y Input, from AUX Scart
27	SLB_VCR	Slow Blanking Input/Ouput from VCR
28	RCIN_AUX	Red/Chroma Input, from AUX Scart
29	GNDV1	Video Switches Ground 1
30	GIN_AUX	Green Input, from AUX Scart
31	SLB_AUX	Slow Blanking Input/Ouput from AUX
32	BIN_AUX	Blue Input, from AUX Scart
33	V_{CCV1}	Video Switches Supply 1 (8V)
34	CVBSIN_STB	CVBS Input from STB
35	LIN_AUX	Audio Left Input, from AUX Scart
36	YCVBSIN_ENC	Y/CVBS Input from Encoder
37	RIN_AUX	Audio Right Input, from AUX Scart
38	YIN_ENC	Y Input, from Encoder
39	RIN_STB	Audio Right Input, from STB
40	CIN_ENC	Chroma Input, from Encoder
41	LIN_STB	Audio Left Input, from STB
42	RCIN_ENC	Red/Chroma Input, from Encoder
43	RIN_ENC	Audio Right Input, from Encoder
44	GIN_ENC	Green Input, from Encoder
45	LIN_ENC	Audio Left Input, from Encoder
46	BIN_ENC	Blue Input, from Encoder
47	RIN_VCR	Audio Right Input, from VCR Scart
48	CIN_VCR	Chroma Input, from VCR Scart
49	LIN_VCR	Audio Left Input, from VCR
50	YCVBSIN_VCR	Y/CVBS Input from VCR Scart
51	V_{REF}	Voltage Reference Decoupling
52	YCVBSIN_TV	Y/CVBS Input, from TV Scart
53	LIN_TV	Audio Left Input, from TV Scart
54	CIN_TV	Chroma Input, from TV Scart
55	V_{CCA}	Audio Switches Supply (8V)
56	RIN_TV	Audio right input, from TV Scart
57	GNDA	Audio Switches Ground
58	ROUT_CINCH	Audio Right Output, to CINCH
59	LOUT_CINCH	Audio Left Output, to CINCH
60	ROUT_VCR	Audio Right Output, to VCR sCart
61	BOUT_TV	Blue Output, to TV Scart
62	LOUT_VCR	Audio Left Output, to VCR Scart
63	GOUT_TV	Green Output, to TV Scart
64	ROUT_TV	Audio Right Output, to TV Scart

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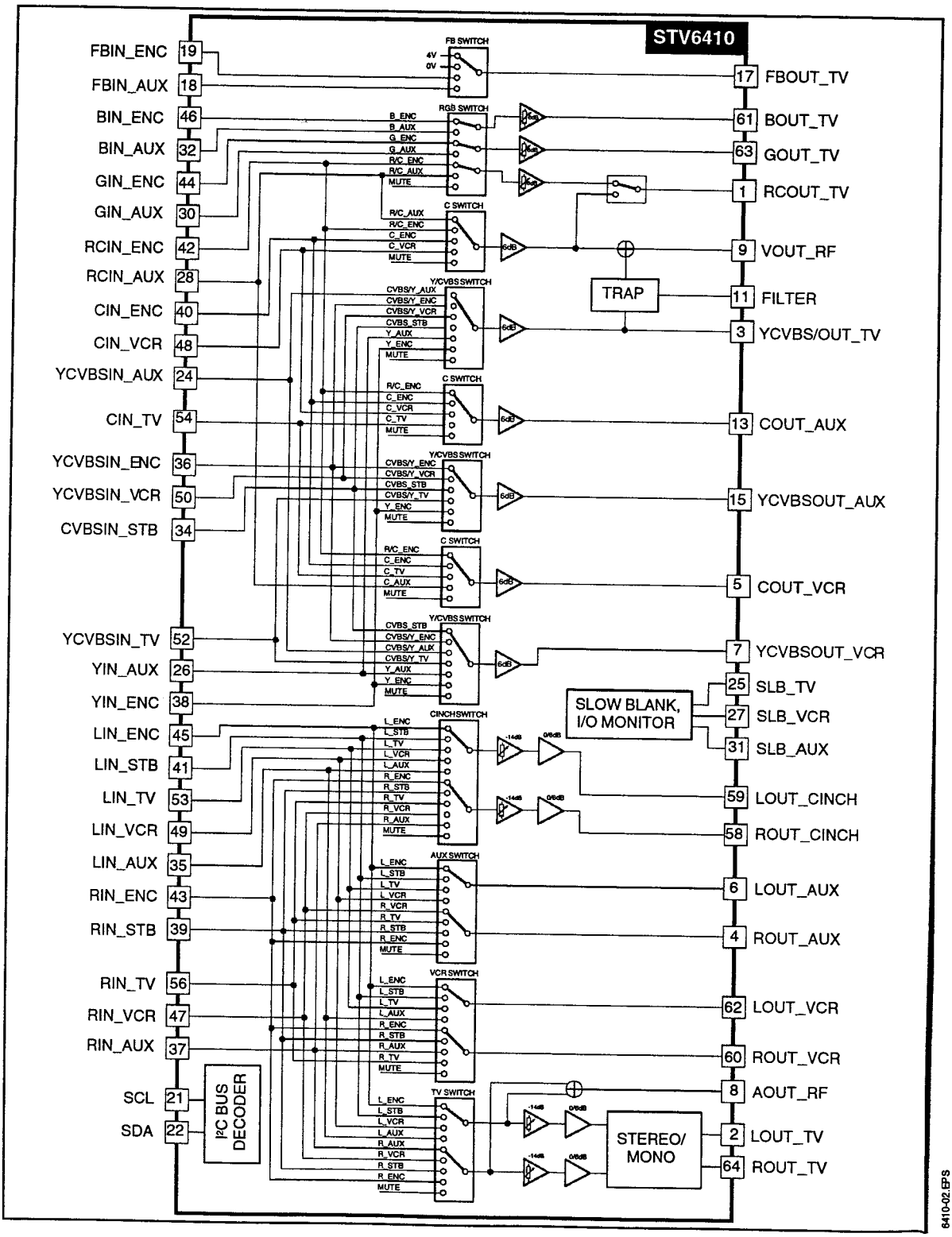
BLOCK DIAGRAM



RGB video processor with automatic cut-off control and gamma adjust

TDA4780

FEATURES

- Gamma adjust
- Dynamic black control (adaptive black)
- All input signals clamped on black-levels
- Automatic cut-off control, alternative: output clamping on fixed levels
- Three adjustable reference voltage levels via I²C-bus for automatic cut-off control
- Luminance/colour difference interface
- Two luminance input levels allowed
- Two RGB interfaces controlled by either fast switches or by I²C-bus
- Two peak drive limiters, selection via I²C-bus
- Blue stretch, selection via I²C-bus
- Luminance output for scan velocity modulation (SCAVEM)
- Extra luminance output; same pin can be used as hue control output e.g. for the TDA4650 and TDA4655
- Non standard operations like 50 Hz/32 kHz are also possible
- Either 2 or 3 level sandcastle pulse applicable
- High bandwidth for 32 kHz application
- White point adjusts via I²C-bus
- Average beam current and improved peak drive limiting
- Two switch-on delays to prevent discoloration during start-up
- All functions and features programmable via I²C-bus
- PAL/SECAM or NTSC matrix selection.

GENERAL DESCRIPTION

The TDA4780 is a monolithic integrated circuit with a luminance and a colour difference interface for video processing in TV receivers. Its primary function is to process the luminance and colour difference signals from a colour decoder which is equipped e.g. with the multistandard decoder TDA4655 or TDA9160 plus delay line TDA4661 or TDA4665 and the Picture Signal Improvement (PSI) IC TDA467X or from a feature module.

The required input signals are:

- Luminance and negative colour difference signals
- 2 or 3-level sandcastle pulse for internal timing pulse generation
- I²C-bus data and clock signals.

Two sets of analog RGB colour signals can also be inserted, e.g. one from a peritelevision connector (SCART plug) and the other one from an On-Screen Display (OSD) generator. The TDA4780 has I²C-bus control of all parameters and functions with automatic cut-off control of the picture tube cathode currents. It provides RGB output signals for the video output stages. In clamped output mode it can also be used as an RGB source.

The main differences with the sister type TDA4680 are:

- Additional features, namely gamma adjust, adaptive black, blue stretch and two different peak drive limiters
- The measurement lines are triggered by the trailing edge of the vertical component of the sandcastle pulse
- I²C-bus receiver only. Automatic white level control is not provided; the white levels are determined directly by the I²C-bus data.
- The TDA4780 is pin compatible (except pin 18) with the TDA4680. The I²C-bus slave address can be used for both ICs. When a function of the TDA4780 is not included in the TDA4680, the I²C-bus command is not executed. Special commands (except control bit FSWL) for the TDA4680 will be ignored by the TDA4780.

RGB video processor with automatic cut-off control and gamma adjust

TDA4780

BLOCK DIAGRAM

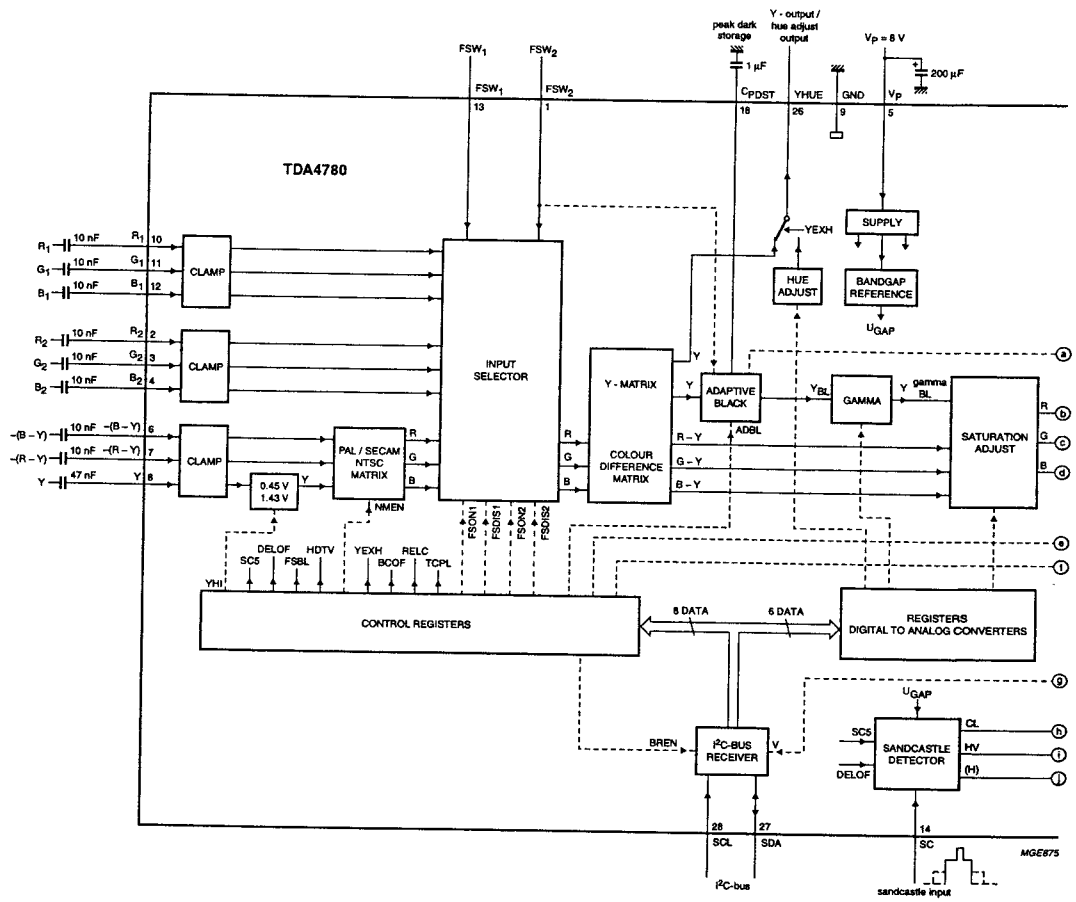


Fig.1 Block diagram (continued in Fig.2).

RGB video processor with automatic cut-off control and gamma adjust

TDA4780

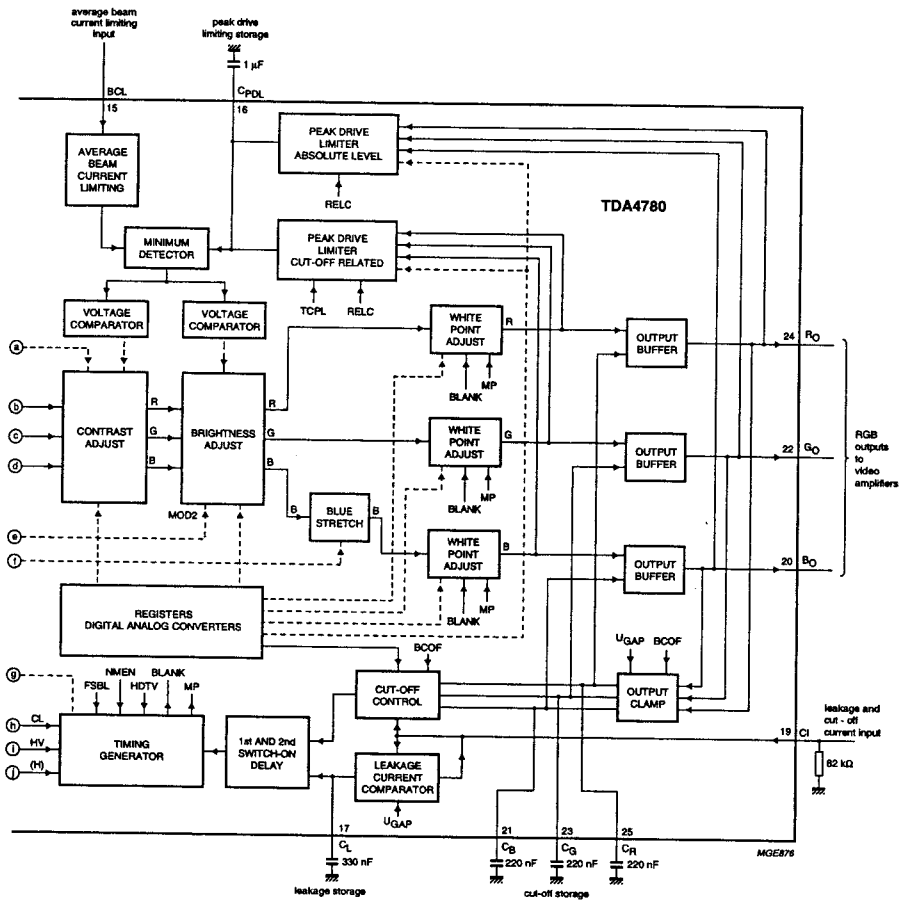


Fig.2 Block diagram (continued from Fig.1).

RGB video processor with automatic cut-off control and gamma adjust — TDA4780

PINNING

SYMBOL	PIN	DESCRIPTION
FSW2	1	Fast switch 2 input
R2	2	Red input 2
G2	3	Green input 2
B2	4	Blue input 2
VP	5	Supply voltage
-(B – Y)	6	Colour difference input –(B – Y)
-(R – Y)	7	Colour difference input –(R – Y)
Y	8	Luminance input
GND	9	Ground
R1	10	Red input 1
G1	11	Green input 1
B1	12	Blue input 1
FSW1	13	Fast switch 1 input
SC	14	Sandcastle pulse input
BCL	15	Average beam current limiting input
CPDL	16	Storage capacitor for peak limiting
CL	17	Storage capacitor for leakage current compensation
CPDST	18	Storage capacitor for peak dark
CI	19	Cut-off measurement input
BO	20	Blue output
CB	21	Blue cut-off storage capacitor
GO	22	Green output
CG	23	Green cut-off storage capacitor
RO	24	Red output
CR	25	Red cut-off storage capacitor
YHUE	26	Y-output/hue adjust output
SDA	27	I2C-bus serial data input/acknowledge output
SCL	28	I2C-bus serial clock input

RGB video processor with automatic cut-off control and gamma adjust

TDA4780

FUNCTIONAL DESCRIPTION

Signal input stages

The TDA4780 contains 3 sets of input signal stages for:

1. Luminance/colour-difference signals:
   a) Y: 0.45 V (p-p) VBS or 1.43 V (p-p) VBS, selectable via I²C-bus.
   b) -(R – Y): 1.05 V (p-p).
   c) -(B – Y): 1.33 V (p-p).

   The capacitively coupled signals are matrixed to RGB signals by either a PAL/SECAM or NTSC matrix (selected via I²C-bus).
2. $(RGB)_1$ signals (0.7 V (p-p) VB), capacitively coupled (e.g. from external source).
3. $(RGB)_2$ signals (0.7 V (p-p) VB), capacitively coupled (e.g. videotext, OSD).

All input signals are clamped in order to have the same black levels at the signal switch input. Displayed signals must be synchronous with the sandcastle pulse.

Signal switches

Both fast signal switches can be operated by switching pins (e.g. SCART facilities) or set via the I²C-bus. With the pin FSW_1 the Y-CD signals or the $(RGB)_1$ signals can be selected, with pin FSW_2 the above selected signals or the $(RGB)_2$ signals are enabled. During the vertical and horizontal blanking time an artificial black level equal to the clamped black level is inserted in order to clip off the sync pulse of the luminance signal and to suppress hum during the cut-off measurement time and eliminate noise during these intervals.

Saturation, contrast and brightness adjust

Saturation, contrast and brightness adjusts are controlled via the I²C-bus and act on Y, CD as well as on RGB input signals. Gamma acts on the luminance content of the input signals.

Gamma adjust

The gamma adjust stage has a non-linear transmission characteristic according to the formula $y = x^{gamma}$, where x represents the input and y the output signal. If gamma is smaller than unity, the lower parts of the signal are amplified with higher gain.

Adaptive black (ADBL)

The adaptive black stage detects the lowest voltage of the luminance component of the internal RGB signals during the scanning time and shifts it to the nominal black level. In order to keep the nominal white level the contrast is increased simultaneously.

Blue stretch (BLST)

The blue stretch channel gets additional amplification if the blue signal is greater than 80% of the nominal signal amplitude. In the event the white point is shifted towards higher colour temperature so that white parts of a picture seem to be brighter.

Measurement pulse and blanking stage

During the vertical and horizontal blanking time and the measurement period the signals are blanked to an ultra black level, so the leakage current of the picture tube can be measured and automatically compensated for.

During the cut-off measurement lines (one line period for each R, G or B) the output signal levels are at cut-off measurement level.

The vertical blanking period is timed by the sandcastle pulse. The measurement pulses (leakage, R, G and B) are triggered by the negative going edge of the vertical pulse of the sandcastle pulse and start after the following horizontal pulse.

The IC is prepared for $2f_H$ (32 kHz) application.

Output ampli?er and white adjust potentiometer

The RGB signals are amplified to nominal 2 V (p-p), the DC-levels are shifted according to cut-off control.
The nominal signal amplitude can be varied by ±50% by the white point adjustment via the I²C-bus (individually for RGB respect).

RGB video processor with automatic cut-off control and gamma adjust

TDA4780

Automatic cut-off control

During leakage measurement time the leakage current is compensated in order to get a reference voltage at the cut-off measurement info pin. This compensation value is stored in an external capacitor. During cut-off current measurement times for the R, G and B channels, the voltage at this pin is compared with the reference voltage, which is individually adjustable via I²C-bus for each colour channel. The control voltages that are derived in this way are stored in the external feedback capacitors. Shift stages add these voltages to the corresponding output signals. The automatic cut-off control may be disabled via the I²C-bus. In this mode the output voltage is clamped to 2.5 V. Clamping periods are the same as the cut-off measurement periods.

Signal limiting

The TDA4780 provides two kinds of signal limiting. First, an average beam limiting, that reduces signal level if a certain average is exceeded. Second, a peak drive limiting, that is activated if one of the RGB signals even shortly exceeds a via I²C-bus adjusted threshold. The latter can be either referred to the cut-off measurement level of the outputs or to ground.

When signal limiting occurs, contrast is reduced, and at minimum contrast brightness is reduced additionally.

Sandcastle decoder and timer

A 3-level detector separates the sandcastle pulse into combined line and field pulses, line pulses, and clamping pulses. The timer contains a line counter and controls the cut-off control measurement.

Application with a 2-level 5 V sandcastle pulse is possible.

Switch on delay circuit

After switch on all signals are blanked and a warm up test pulse is fed to the outputs during the cut-off measurement lines. If the voltage at the cut-off measurement input exceeds an internal level the cut-off control is enabled but the signal remains still blanked. In the event of output clamping, the cut-off control is disabled and the switch on procedure will be skipped.

Y output and hue adjust

The TDA4780 contains a D/A converter for hue adjust. The analog information can be fed, e.g. to the multistandard decoder TDA4650 or TDA4655. This output pin may be switched to a Y output signal, which can be used for scan velocity modulation (SCAVEM). The Y output is the Y input signal or the matrixed (RGB) input signal according to the switch position of the fast switch.

I²C-bus

The TDA4780 contains an I²C-bus receiver for control function.

ESD protection

The Pins are provided with protection diodes against ground and supply voltage (see Chapter "Internal pin configurations"). I²C-bus input pins do not shunt the I²C-bus signals in the event of missing supply voltage.

EMC

The pins are protected against electromagnetic radiation.

Ersatzteileliste für Artikel : 59501

SPARE PART LIST

Änderungen und Liefermöglichkeiten vorbehalten !

DVD - PLAYER XEMIX

LOEWE.

POSNR. ITEMNMB	KURZTEXT DESCRIPTION		BESTELLNR. LIST-PART-NMB	ENTF-DAT. LAST-DATE
	BAUGRUPPEN		**UNITS**	
1	DVD-LAUFWERK VAL6011		DRIVE MECHANISM	270-90360972
1	LAUFWERK-MECHANISMUS VAL3000		DRIVE MECHANISM	270-90365944
82	DVD LAUFWERKMODUL MIT LO-PROGR. EUROPA	MIT VAL3000 LOADER	SCAFFOLDING ACCESS.	291-90350968
82	DVD LAUFWERKMODUL MIT LO-PROGR. AUSTRAL.	MIT VAL3000 LOADER	SCAFFOLDING ACCESS.	291-90350969
82	DVD LAUFWERKMODUL MIT LO-PROGR. RUSSL.	MIT VAL3000 LOADER	SCAFFOLDING ACCESS.	291-90350970
U0000	DVD-LAUFWERK VAL6011	OHNE DVD ASD1 PCBA	DRIVE MECHANISM	270-90360972
U0000	LEITERPL. DVD-ASD1 XEMIX-EUROPA	TAUSCHTEIL	PRINT.CIRCUIT BOARD	396-90361949
U0000	LEITERPL. DVD-ASD1 XEMIX-AUSTRALIEN	TAUSCHTEIL	PRINT.CIRCUIT BOARD	396-90361968
U0000	LEITERPL. DVD-ASD1 XEMIX-RUSSLAND	TAUSCHTEIL	PRINT.CIRCUIT BOARD	396-90361987
	DRUCKSACHEN		**OPERATING INSTRUCTIONS**	
N0000	BA D-I DVD-PLAYER XEMIX		OPERATING INSTRUCT.	233-28758
N0000	BA NL-F DVD-PLAYER XEMIX		OPERATING INSTRUCT.	233-28758010
N0000	BA GB-E DVD-PLAYER XEMIX		OPERATING INSTRUCT.	233-28758020
N0000	SERVICE ANLEITUNG DVD		SERVICE MANUAL	230-90347911
	GERÄTEBEIPACK		**SET SUPPLEMENT**	
301	NETZKABEL		POWER CORD	170-90339977
313	AUDIO-VERBINDUNGSKABEL		CONNECTING CABLE	169-90350918
313	AUDIO-VERBINDUNGSKABEL 2X2 RCA 1,5M		CONNECTING CABLE	169-90363995
314	SKARTKABEL		CONNECTING CABLE	169-90349981
316	VIDEO-VERBINDUNGSKABEL		CONNECTING CABLE	169-90349963
318	IR-FERNBEDIENUNG CONTROL 300 DVD SCHWARZ		TRANSMITTER	263-87000054
A0000	MIKROZELLE 1,5V ALKALI-MANGAN	(2X)	ACCUMULATOR	280-13411
	VERPACKUNGSMATERIAL		**PACKING MATERIAL**	
455	VERPACKUNGSKARTON XEMIX		PACKING CASE	245-90351996
460	STYROPOR PACKSCHALENSATZ		CUSHION-SET	252-90353908
J0000	VERPACKUNGSKARTON XEMIX		PACKING CASE	245-90351996
J0000	STYROPOR PACKSCHALENSATZ		CUSHION-SET	252-90353908
	VERBINDUNGSLEITUNG		**CONNECTING CABLES**	
8006	FLACHBANDLEITUNG 22-POLIG		CONNECTING CABLE	165-90349925
8007	FLACHBANDLEITUNG 16-POLIG		CONNECTING CABLE	165-90349944
	KNÖPFE		**BUTTONS**	
20	TASTENSATZ 2-FACH, GRAPHIT		BUTTON	682-90352901
20	TASENSATZ 2-FACH, ARKTIS		BUTTON	682-90352939
21	TASTENSATZ 5-FACH, GRAPHIT		BUTTON	682-90352958
21	TASTENSATZ 5-FACH, ARKTIS		BUTTON	682-90352977
50	DREHKNOPF GRAPHIT		BUTTON	682-90350975
50	DREHKNOPF ARKTIS		BUTTON	682-90350981
50	DREHKNOPF, PLATIN		BUTTON	682-90363938
	GEHÄUSETEILE		**CABINET MOUNTING**	
1	FRONTBLENDE KPL. GRAPHIT		MASK	703-90348969
1	FRONTBLENDE KPL ARKTIS		MASK	703-90349968
1	FRONTBLENDE, KPL. PLATIN		MASK	703-90363919
151	GEHÄUSEHAUBE GRAPHIT		CABINET	748-90348988
151	GEHÄUSEHAUBE ARKTIS		CABINET	748-90349949
151	GEHÄUSEHAUBE, PLATIN		CABINET	748-90363957
171	TORX-SCHRAUBE M3X6 ST NI		SCREW	440-90363976

POSNR. ITEMNMB	KURZTEXT DESCRIPTION	59501		BESTELLNR. LIST-PART-NMB	ENTF-DAT. LAST-DATE
172	TORX-SCHRAUBE M3X6 ST NI		SCREW	440-90363976	
173	TORX-SCHRAUBE M3X6 ST NI		SCREW	440-90363976	
174	TORX-SCHRAUBE M3X6 ST NI		SCREW	440-90363976	
175	TORX-SCHRAUBE M3X6 ST NI		SCREW	440-90363976	
176	TORX-SCHRAUBE M3X6 ST NI		SCREW	440-90363976	
177	TORX-SCHRAUBE M3X6 ST NI		SCREW	440-90363976	
181	BODENPLATTE DVD (ASD1)		BOTTOM COVER	777-90362999	
182	KONTAKTFEDER		BATT.CONT.SPRING	729-90360974	
22	FENSTER INFRA & DISPLAY		WINDOW	666-90352996	
23	KLAPPE FÜR DVD-LAUFWERK		COVER	568-90353914	
251	FUSS		FOOT	783-90351959	
251	GEHÄUSEFUSS		FOOT	783-90363925	
252	FUSS		FOOT	783-90351959	
252	GEHÄUSEFUSS		FOOT	783-90363925	
253	FUSS		FOOT	783-90351959	
253	GEHÄUSEFUSS		FOOT	783-90363925	
254	FUSS		FOOT	783-90351959	
254	GEHÄUSEFUSS		FOOT	783-90363925	
30	MAGNET		MAGNET	303-90351946	
31	MAGNET		MAGNET	303-90351946	
32	DAEMPFUNGSEINHEIT FÜR BEDIENFELDKLAPPE		DRIVER	619-90360975	
33	DAEMPFUNGSEINHEIT FÜR BEDIENFELDKLAPPE		DRIVER	619-90360975	
36	ZUGFEDER	FÜR LAUFWERKKLAPPE	TENSION SPRING	725-90351984	
37	ZUGFEDER	FÜR LAUFWERKKLAPPE	TENSION SPRING	725-90351984	
G0000	GEHÄUSEHAUBE, GRAPHIT	BEI VAL6011-BESTÜCKU	CABINET	748-90362962	
G0000	GEHÄUSEHAUBE, ARKTIS (ASD1)	BEI VAL6011-BESTÜCKU	CABINET	748-90362981	
G0000	BODENPLATTE DVD (ASD1)	BEI VAL6011-BESTÜCKU	BOTTOM COVER	777-90362999	
H0000	LICHTLEITER		WINDOW	666-90351907	
H0000	KONTAKTFEDER	AN BODENPLATTE	BATT.CONT.SPRING	729-90360974	
H0000	DAEMPFUNGSEINHEIT FÜR BEDIENFELDKLAPPE		DRIVER	619-90360975	
	LAUFWERKSTEILE		**DRIVE MECHANISM**		
1	LOADER MONTAGERAHMEN,KPL.	ASD-1	FRAME	549-90362946	
10	DÄMPFUNGSSTÜCK	ASD-1	DAMPING RUBBER	406-90360996	
11	CD-SCHLITTEN	ASD-1	DRIVER	619-90361952	
12	CD-SCHLITTENMOTOR	ASD-1	MOTOR	269-90361971	
2	LASER-ABTASTEINHEIT	ASD-1	DRIVE MECHANISM	270-90362965	
3	AUFHÄNGUNG (GELB)	ASD-1	DAMPING RUBBER	406-90362984	
4	ANTRIEBSRIEMEN	ASD-1 (LOADER)	RUBBER DRIVING BELT	407-90362983	
4	AUFHÄNGUNG (GELB)	ASD-1 (VAL6011)	DAMPING RUBBER	406-90362984	
5	AUFHÄNGUNG (BLAU)	ASD-1	DAMPING RUBBER	406-90360978	
6	AUFHÄNGUNG (BLAU)	ASD-1	DAMPING RUBBER	406-90360978	
7	CD-FÜHRUNGSTELLER, KPL.	ASD-1	REVOLVING PLATE	612-90360997	
9	SCHALTER	ASD-1	MICRO SWITCH	310-90360977	
X0000	LPL. INCL. FLACHBANDLEITUNG, 8-POLIG	ASD-1 <--> 1106	PRINT.CIRCUIT BOARD	396-90362945	
X0000	FLACHBANDLEITUNG 24-POLIG	ASD-1 <--> 1104	CONNECTING CABLE	165-90362964	
	SPULEN/LAUTSPRECHER		**COILS,SPEAKERS**		
5120	DR NETZDROSSEL		CHOKE	298-90350939	
5125	DR FERRITDROSSEL 100MHZ		CHOKE	298-90350977	
5131	TRAFO WANDLER		POWER TRANSFORMER	490-90348952	
5210	SPULE 6U8 M 7,7X9,5		COIL	297-90350901	
5230	SPULE 10U K 4X9,8MM LAL04T100K		COIL	297-90343903	
5233	SPULE 10U K 4X9,8MM LAL04T100K		COIL	297-90343903	
5240	SPULE 1U M 4X9,8MM AXIAL		COIL	297-90350958	
5259	SPULE 10U K 4X9,8MM LAL04T100K		COIL	297-90343903	

POSNR. ITEMNMB	KURZTEXT DESCRIPTION	59501		BESTELLNR. LIST-PART-NMB	ENTF-DAT. LAST-DATE
5400	SPULE 100U		COIL	297-90348972	
	ALLGEM.MECHAN.TEILE		**COMMON MECHANICAL PARTS**		
H0000	LICHTLEITER	FÜR LED	WINDOW	666-90351907	
H0000	KONTAKTFEDER	FÜR BODENPLATTE	BATT.CONT.SPRING	729-90360974	
	INTEGR.SCHALTUNGEN		**INTEGRATED CIRCUITS**		
7100	IC LM833D		INTEGRATED CIRCUIT	349-90348974	
7101	IC ROM SLAVE DVD		INTEGRATED CIRCUIT	349-90348992	
7103	IC BA5938FM	ASD-1	INTEGRATED CIRCUIT	350-90360969	
7104	IC LM833D	ASD-1	INTEGRATED CIRCUIT	349-90348974	
7105	IC MC34072D	ASD-1	INTEGRATED CIRCUIT	350-90361964	
7109	IC AN78M09	ASD-1	INTEGRATED CIRCUIT	350-90361983	
7110	IC MC44603AP		INTEGRATED CIRCUIT	349-90348989	
7110	IR-EMPFAENGER TSOP-1736(SFH506-36)	IR-EMPFÄNGER	COUPLER	353-22155	
7200	IC TCA0372DP1		INTEGRATED CIRCUIT	349-90348993	
7201	IC KA431LZTA		INTEGRATED CIRCUIT	349-90348951	
7207	IC SAA7399HL/M2A	ASD-1	INTEGRATED CIRCUIT	350-90362901	
7207	IC SAA7399HL/M2A		INTEGRATED CIRCUIT	350-90368954	
7233	IC 7805 CT		INTEGRATED CIRCUIT	349-90270985	
7237	IC KA431LZTA		INTEGRATED CIRCUIT	349-90348951	
7304	IC BA6856FP	ASD-1	INTEGRATED CIRCUIT	350-90362977	
7305	IC SM STV6410AD (ST00) Y		INTEGRATED CIRCUIT	349-90350902	
7310	IC CY7C199-15C	ASD-1	INTEGRATED CIRCUIT	350-90362996	
7311	IC SAA7335HL/E/M2 /PHSE)Y	ASD-1	INTEGRATED CIRCUIT	350-90361927	
7316	IC TDA4780-V4		INTEGRATED CIRCUIT	349-27676	
7400	IC LD1117DT33		INTEGRATED CIRCUIT	349-90348991	
7401	IC UAD1328T		INTEGRATED CIRCUIT	349-90349909	
7401	IC AM29LV160B	ASD-1	INTEGRATED CIRCUIT	350-90361946	
7403	IC MC33079D		INTEGRATED CIRCUIT	349-90349947	
7404	IC MT48LC1M16A1TG-6S	ASD-1	INTEGRATED CIRCUIT	350-90361965	
7405	IC MT48LC1M16A1TG-6S	ASD-1	INTEGRATED CIRCUIT	350-90361965	
7408	IC MC33079D		INTEGRATED CIRCUIT	349-90349947	
7413	IC 74HC4053N		INTEGRATED CIRCUIT	349-90350979	
7503	IC STI5505AVC (ST00) Y	ASD-1	INTEGRATED CIRCUIT	350-90361915	
7505	IC M24C32-WMN6/PROG		INTEGRATED CIRCUIT	350-90362921	
7600	IC PC74HCT14T	ASD-1	INTEGRATED CIRCUIT	350-90362959	
7605	IC LD1117DT33	ASD-1	INTEGRATED CIRCUIT	349-90348991	
7616	IC MK2742-03S	ASD-1	INTEGRATED CIRCUIT	350-90362997	
	BUCHSEN/FASSUNGEN		**SOCKETS**		
101	NETZ-EINBAUSTECKER		PLUG	321-90350919	
1100	STIFTKONTAKTLEISTE, 2-POLIG, RM 2,5MM		CONTACT LEDGE	326-90372966	
1101	STIFTKONTAKTLEISTE, 6-POLIG		CONTACT LEDGE	326-90371954	
1104	KONTAKTLEISTE 24-POLIG	ASD-1	SOCKET	323-90360991	
1106	KONTAKTLEISTE 8-POLIG	ASD-1	SOCKET	323-90361909	
1201	KOPFHÖRERBUCHSE		SOCKET	323-90349911	
1300	KONTAKTLEISTE 22-POLIG (FFC)		CONTACT LEDGE	326-90349985	
1301	KONTAKTLEISTE 16-POLIG		CONTACT LEDGE	326-90349966	
1301	FEDERKONTAKTLEISTE 11-POLIG	ASD-1	SOCKET	323-90361966	
1303	BUCHSE 4-POLIG		CONTACT LEDGE	326-90350922	
1304	A/V EUROBUCHSE 2 X 21-POLIG		SOCKET	323-90349984	
1400	CINCHBUCHSE 6-FACH		SOCKET	323-90350921	
1402	BUCHSE 3-POLIG		SOCKET	323-90350903	
1405	BUCHSE		SOCKET	323-90350941	
1603	FEDERKONTAKTLEISTE 22-POLIG	ASD-1	SOCKET	323-90361985	

POSNR. ITEMNMB	KURZTEXT DESCRIPTION	59501		BESTELLNR. LIST-PART-NMB	ENTF-DAT. LAST-DATE
1604	FEDERKONTAKTLEISTE 16-POLIG	ASD-1	SOCKET	323-90362903	
2210	STIFTKONTAKTLEISTE, 7-POLIG		CONTACT LEDGE	326-90371936	
6400	OPTICAL-BUCHSE		SOCKET	323-90350978	
9	SICHERUNGSHALTER		HOLDER	602-90350957	
	TRANSISTOREN		**TRANSISTORS**		
7100	TRANS BFS20	ASD-1	TRANSISTOR	344-90342987	
7101	TRANS BC847B SOT23		TRANSISTOR	344-14974	
7101	TRANS BC846B		TRANSISTOR	344-90341995	
7101	TRANS BFS20	ASD-1	TRANSISTOR	344-90342987	
7102	TRANS BC847B SOT23		TRANSISTOR	344-14974	
7102	TRANS BC846B		TRANSISTOR	344-90341995	
7103	TRANS BC847B SOT23		TRANSISTOR	344-14974	
7103	TRANS BC846B		TRANSISTOR	344-90341995	
7106	TRANS BFS20	ASD-1	TRANSISTOR	344-90342987	
7111	TRANS BC846B	ASD-1	TRANSISTOR	344-90341995	
7112	TRANS BC846B	ASD-1	TRANSISTOR	344-90341995	
7113	TRANS BC846B	ASD-1	TRANSISTOR	344-90341995	
7114	TRANS BC846B	ASD-1	TRANSISTOR	344-90341995	
7115	TRANS BC856B	ASD-1	TRANSISTOR	344-90341976	
7116	TRANS BC846B	ASD-1	TRANSISTOR	344-90341995	
7125	TRANS STP4NA60FI		TRANSISTOR	346-90349908	
7203	TRANS BC856B	ASD-1	TRANSISTOR	344-90341976	
7235	TRANS BC847		TRANSISTOR	344-90349927	
7236	TRANS STP16NE06		TRANSISTOR	346-90349946	
7300	TRANS BC856B		TRANSISTOR	344-90341976	
7301	TRANS BC847B SOT23		TRANSISTOR	344-14974	
7302	TRANS BC847B SOT23		TRANSISTOR	344-14974	
7303	TRANS BC847B SOT23		TRANSISTOR	344-14974	
7304	TRANS LF80C		TRANSISTOR	346-90348954	
7306	TRANS BC847B SOT23		TRANSISTOR	344-14974	
7307	TRANS BC847B SOT23		TRANSISTOR	344-14974	
7308	TRANS BC847B SOT23		TRANSISTOR	344-14974	
7309	TRANS BC847B SOT23		TRANSISTOR	344-14974	
7310	TRANS BC847B SOT23		TRANSISTOR	344-14974	
7311	TRANS BC847B SOT23		TRANSISTOR	344-14974	
7312	TRANS BC856B		TRANSISTOR	344-90341976	
7312	TRANS BC856B	ASD-1	TRANSISTOR	344-90341976	
7313	TRANS BC847B SOT23		TRANSISTOR	344-14974	
7314	TRANS BC817-25		TRANSISTOR	344-90348953	
7315	TRANS BC817-25		TRANSISTOR	344-90348953	
7315	TRANS BC846B	ASD-1	TRANSISTOR	344-90341995	
7320	TRANS BC847B SOT23		TRANSISTOR	344-14974	
7321	TRANS BC817-25		TRANSISTOR	344-90348953	
7322	TRANS BC847B SOT23		TRANSISTOR	344-14974	
7324	TRANS BC817-25		TRANSISTOR	344-90348953	
7325	TRANS BC847B SOT23		TRANSISTOR	344-14974	
7326	TRANS BC856B		TRANSISTOR	344-90341976	
7327	TRANS BC847B SOT23		TRANSISTOR	344-14974	
7328	TRANS BC847B SOT23		TRANSISTOR	344-14974	
7329	TRANS BC847B SOT23		TRANSISTOR	344-14974	
7330	TRANS BC847B SOT23		TRANSISTOR	344-14974	
7331	TRANS BC 547 B		TRANSISTOR	346-74983	
7332	TRANS BC856B		TRANSISTOR	344-90341976	
7333	TRANS BC 327-25		TRANSISTOR	346-78954	
7334	TRANS BC847B SOT23		TRANSISTOR	344-14974	

POSNR. ITEMNMB	KURZTEXT DESCRIPTION	59501		BESTELLNR. LIST-PART-NMB	ENTF-DAT. LAST-DATE
7335	TRANS BC847B SOT23			TRANSISTOR	344-14974
7336	TRANS BC817-25			TRANSISTOR	344-90348953
7337	TRANS BC817-25			TRANSISTOR	344-90348953
7402	TRANS BC817-25			TRANSISTOR	344-90348953
7404	TRANS BC817-25			TRANSISTOR	344-90348953
7405	TRANS BC817-25			TRANSISTOR	344-90348953
7406	TRANS BC817-25			TRANSISTOR	344-90348953
7407	TRANS BC817-25			TRANSISTOR	344-90348953
7409	TRANS BC817-25			TRANSISTOR	344-90348953
7410	TRANS BC817-25			TRANSISTOR	344-90348953
7411	TRANS BC817-25			TRANSISTOR	344-90348953
7412	TRANS BC817-25			TRANSISTOR	344-90348953
7415	TRANS BC817-25			TRANSISTOR	344-90348953
7416	TRANS BC817-25			TRANSISTOR	344-90348953
7419	TRANS BC817-25			TRANSISTOR	344-90348953
7420	TRANS BC817-25			TRANSISTOR	344-90348953
7421	TRANS BC817-25			TRANSISTOR	344-90348953
7422	TRANS BC 557 B			TRANSISTOR	346-74878
7423	TRANS BC847B SOT23			TRANSISTOR	344-14974
7501	TRANS BC846B		ASD-1	TRANSISTOR	344-90341995
7604	TRANS BC846B		ASD-1	TRANSISTOR	344-90341995
7607	TRANS BC846B		ASD-1	TRANSISTOR	344-90341995
7608	TRANS BC856B		ASD-1	TRANSISTOR	344-90341976
7609	TRANS BC856B		ASD-1	TRANSISTOR	344-90341976
7610	TRANS BC846B		ASD-1	TRANSISTOR	344-90341995
7612	TRANS BC846B		ASD-1	TRANSISTOR	344-90341995
7613	TRANS BC846B		ASD-1	TRANSISTOR	344-90341995
7614	TRANS BC846B		ASD-1	TRANSISTOR	344-90341995
7615	TRANS BC846B		ASD-1	TRANSISTOR	344-90341995
7617	TRANS BC846B		ASD-1	TRANSISTOR	344-90341995
7618	TRANS BC846B		ASD-1	TRANSISTOR	344-90341995
7620	TRANS BC856B		ASD-1	TRANSISTOR	344-90341976
7621	TRANS BC817-25		ASD-1	TRANSISTOR	344-90348953
	DIODEN			**DIODES**	
1150	DISPLAY EINHEIT			COUPLER	353-90349931
6101	DIODE BZX284-C3V9			DIODE	352-90348955
6110	DIODE BYD33J			DIODE	352-90341959
6111	DIODE BYD33J			DIODE	352-90341959
6114	DIODE BYD33D			DIODE	352-90342915
6120	DIODE SINB80			DIODE	352-90348971
6129	DIODE ZD 24V BZX84-C24			DIODE	352-90350938
6200	DIODE BAS316 SOD323 LV030		ASD-1	DIODE	351-27952
6210	DIODE PBYR1080			DIODE	352-90349965
6230	DIODE PBYR1080			DIODE	352-90349965
6250	DIODE BYD33D			DIODE	352-90342915
6260	DIODE BYD33J			DIODE	352-90341959
6300	DIODE ZD 5V6 BZX284-C5V6			DIODE	352-90350959
6301	DIODE BAS216 SOD110			DIODE	351-27279
6301	DIODE S1D		ASD-1	DIODE	351-90359975
6302	DIODE BAS216 SOD110			DIODE	351-27279
6302	DIODE S1D		ASD-1	DIODE	351-90359975
6303	DIODE BAS216 SOD110			DIODE	351-27279
6303	DIODE S1D		ASD-1	DIODE	351-90359975
6600	DIODE 1PS76SB10		ASD-1	DIODE	351-90359994
7200	PHOTO-COUPLER CQY 80 NG			COUPLER	353-90277903

POSNR. ITEMNMB	KURZTEXT DESCRIPTION	59501		BESTELLNR. LIST-PART-NMB	ENTF-DAT. LAST-DATE
	QUARZE/FILTER			**QUARTZES**	
1104	QUARZ 8,0 MHZ CSTS*MG03			CRYSTAL OSCILLATOR	385-90349969
1205	QUARZ 8,467 MHZ CSTCC			CRYSTAL OSCILLATOR	385-90361928
1300	QUARZ 6,0 MHZ CSTCC			CRYSTAL OSCILLATOR	385-90361947
7504	QUARZ 27,0 MHZ 120P FX0-31FT		ASD-1	CRYSTAL OSCILLATOR	385-90362902
	SCHALTER			**SWITCHES**	
1102	TASTSCHALTER			SWITCH	467-90350942
1103	TASTSCHALTER			SWITCH	467-90350942
	POTENTIOMETER			**POTENTIOMETERS**	
3201	POT 10KX2 20% 0,025W			POTENTIOMETER	375-90350961
	SICHERUNGEN			**FUSES**	
1120	SICH. 2500MA T 250V 5X20 L LV380-1 A.3			FUSE	380-45568
1125	FUNKENSTRECKE			FUSE	380-90350976
	KONDENSATOREN			**CAPACITORS**	
2121	ELKO 100U M 400V 22X35			ELECTROLYT CAPACITOR	360-90349983
2127	KOND 47P J 1KV			CAPACITOR	357-90349926
2131	KOND 2N2 M 250V			CAPACITOR	357-90349945
2251	KOND 1N K 1KV SMD			CAPACITOR	356-90348994
	WIDERSTÄNDE			**RESISTORS**	
3120	WID 1MA/423V 800V			VDR RESISTOR	371-90349964
3122	WID 2R7 3W AC03 WW			RESISTOR	368-90349907
R0000	WID 10K F 0805 LV364-1 LV030			RESISTOR	364-23063
R0000	WIDCH 2K7 F 0W1 0805			RESISTOR	364-90373905
R0000	WIDCH 100K F 0W1			RESISTOR	364-90373961
R0000	WIDCH 12R J 1206 SI		SI	RESISTOR	364-90375911
	GEBER-ERSATZTEILE			**SPARE PARTS FOR TRANSMITTER**	
20	BATTERIEFEDER VERGOLDET			SPRING	739-87217002
20	GEHAEUSE-OBERTEIL CONTROL 300 SCHWARZ			COVER	756-87265007
25	LICHTLEITER			WINDOW	666-87274001
30	KONTAKTMATTE CONTROL 300			SPRING CONTACT	309-87266003
70	GEHAEUSE-UNTERTEIL CONTROL 100/200 SCHW			COVER	756-87264002
80	BATTERIEFEDER 2-FACH			SPRING	739-85279001
90	BATTERIEDECKEL CONTROL 100/200/201/USA			COVER	756-87215002
D 104	DIODE BAS216 SOD110			DIODE	351-27279
D 105	DIODE BAS216 SOD110			DIODE	351-27279 13.03.2002
D 108	DIODE BAS216 SOD110			DIODE	351-27279
D 117	LED LG T679 SMD			COUPLER	353-27021
D 118	LED LG T679 SMD			COUPLER	353-27021
D 121	DIODE LED F.D.SFH 4515			COUPLER	353-27024
I 101	ICMOS PCA84C122AT-231			INTEGRATED CIRCUIT	350-27787 13.03.2002
I 101	ICMOS HT48CA6 24SOP M-CONTR. V1.0 LV030			INTEGRATED CIRCUIT	350-29859001
Q 121	TRANS GENERAL SOT23 PNP 45V 500MA			TRANSISTOR	344-25509 13.03.2002
Q 122	TRANS GENERAL SOT23 PNP 45V 500MA			TRANSISTOR	344-25509
X 111	PIEZO 4,300000 MHZ MELF RESON LV030			CERAMIC FILTER	386-27022 13.03.2002
X 111	RESON 3,580000 MHZ SMD MIT KOND.			CERAMIC FILTER	386-29931
	NACHRÜSTSÄTZE				
G0000	BLENDE XEMIX PLATIN	FRONTKLAPPE		ACCESSORIES	009-87884A00
G0000	BLENDE XEMIX SCHWARZ	FRONTKLAPPE		ACCESSORIES	009-87884L00
G0000	BLENDE XEMIX ARKTIS	FRONTKLAPPE		ACCESSORIES	009-87884U00
G0000	BLENDE XEMIX HGL-SCHWARZ	FRONTKLAPPE		ACCESSORIES	009-87884W00

Ersatzteileliste für Artikel : 59502

SPARE PART LIST

Änderungen und Liefermöglichkeiten vorbehalten !

DVD-Player Auro

LOEWE.

POSNR. ITEMNMB	KURZTEXT DESCRIPTION		BESTELLNR. LIST-PART-NMB	ENTF-DAT. LAST-DATE
	BAUGRUPPEN		**UNITS**	
1	LAUFWERK-MECHANISMUS VAL3000		LOADER VAL3000	270-90365944
82	DVD LAUFWERKMODUL M. LO-SYS-PROGR.EUROPA		DVD MODULE WITH LO-SYS	291-90350987
82	DVD LAUFWERKMODUL M.LO-SYS-PROGR.AUSTRAL		DVD MODULE WITH LO-SYS	291-90350988
82	DVD LAUFWERKMODUL M. LO-SYS-PROGR.RUSSL.		DVD MODULE WITH LO-SYS	291-90350989
U0000	DVD-LAUFWERK VAL6011	OHNE DVD-ASD1 PCB	LOADER VAL6011	270-90360972
U0000	LEITERPL. DVD-ASD1 AURO-EUROPA	TAUSCHTEIL	PCBA. DVD-ASD1 AURO-EU	396-90362905
U0000	LEITERPL. DVD-ASD1 AURO-AUSTRALIEN	TAUSCHTEIL	PCBA. DVD-ASD1 AURO-AU	396-90362924
U0000	LEITERPL. DVD-ASD1 AURO-RUSSLAND	TAUSCHTEIL	PCBA. DVD-ASD1 AURO-RU	396-90362943
	DRUCKSACHEN		**OPERATING INSTRUCTIONS**	
N0000	BA D-I DVD-PLAYER AURO		OPERATING INSTR. D-I DV	233-28709
N0000	BA NL-F DVD-PLAYER AURO		OPERAT.INSTR. NL-F DVD-	233-28709010
N0000	BA GB-E DVD-PLAYER AURO		OPERAT.INSTR. GB-E DVD-	233-28709020
N0000	SERVICE ANLEITUNG DVD		SERVICE MANUAL	230-90347911
	GERÄTEBEIPACK		**SET SUPPLEMENT**	
301	NETZKABEL		CORD, MAINS	170-90339977
313	AUDIO VERBINDUNGSKABEL GOLD PLATED		AUDIO CORD SET GOLD PL	169-90350905
314	SKARTKABEL		CABLE, CONNECTING SCA	169-90349981
316	VIDEO VERBINDUNGSKABEL GOLD PLATED		VIDEO CORD SET GOLD PL	169-90350924
317	DIGITAL AUDIO VERBINDUNGSKABEL		CABLE, CONNECTING DIGIT	169-90350943
318	IR-FERNBEDIENUNG CONTROL 350 DVD ARKTIS		TRANSMITTER	263-87000062
A0000	MIKROZELLE 1,5V ALKALI-MANGAN	(2X)	BATTERY AAA	280-13411
	VERPACKUNGSMATERIAL		**PACKING MATERIAL**	
J0000	VERPACKUNGSKARTON FUER BAN+FB SCHWARZ		PACKING CASE FOR OIN+C	245-86779002
J0000	VERPACKUNGSKARTON AURO		PACKING CASING AURO	245-90352914
J0000	STYROPOR PACKSCHALEN-SATZ		EPS-CUSHION	252-90352935
N0000	RUECKANTWORTKARTE DVD LO-S D-I-GB-F-E-NL		REANSWERCARD DVD L	240-28869001
	VERBINDUNGSLEITUNG		**CONNECTING CABLES**	
8006	FLACHBANDLEITUNG 22-POLIG		CABLE, HIGH TENSION 22P	165-90349925
8007	FLACHBANDLEITUNG 16-POLIG		CABLE, HIGH TENSION 16P	165-90349944
	KNÖPFE		**BUTTONS**	
20	TASTENSATZ 2-FACH, GRAPHIT		BUTTON UNIT LEFT ASSY B	682-90352901
20	TASENSATZ 2-FACH, ARKTIS		BUTTON UNIT LEFT ASSY G	682-90352939
20	TASTENSATZ 2-FACH, STRATOS-METALLIC		BUTTON UNIT LEFT ASSY S	682-90360947
20	TASTENSATZ 2-FACH, SCHWARZ-HOCHGLANZ		BUTTON UNIT LEFT ASSY H	682-90360966
21	TASTENSATZ 5-FACH, GRAPHIT		BUTTON UNIT RIGHT ASSY	682-90352958
21	TASTENSATZ 5-FACH, ARKTIS		BUTTON UNIT RIGHT ASSY	682-90352977
21	TASTENSATZ 5-FACH, STRATOS-METALLIC		BUTTON UNIT RIGHT ASSY	682-90358941
21	TASTENSATZ 5-FACH, SCHWARZ-HOCHGLANZ		BUTTON UNIT RIGHT ASSY	682-90358979
50	DREHKNOPF GRAPHIT		VOLUME BUTTON GRAPHI	682-90350975
50	DREHKNOPF ARKTIS		VOLUME BUTTON ARCTIC	682-90350981
	GEHÄUSETEILE		**CABINET MOUNTING**	
1	FRONTBLENDE KPL GRAPHIT		FRONT PANEL, GRAPHITE	703-90349987
1	FRONTBLENDE KPL ARKTIS		FRONT COMPLETE DVD LO	703-90350962
1	FRONTBLENDE KPL. STRATOS-METALLIC		FRONT COMPLETE STRATO	703-90360909
1	FRONTBLENDE KPL. HOCHGLANZ-SCHWARZ		FRONT COMPLETE HIGH P	703-90360928
10	FRONTKLAPPE, GRAPHIT		FRONTFLAP BLACK DVD LO	568-90352902

POSNR. ITEMNMB	KURZTEXT DESCRIPTION	59502		BESTELLNR. LIST-PART-NMB	ENTF-DAT. LAST-DATE
10	FRONTKLAPPE, ARKTIS		FRONTFLAP ARCTIC DVD L	568-90352921	
10	FRONTKLAPPE, STRATOS-METALLIC		FRONTFLAP STRATOS-MET	568-90359973	
10	FRONTKLAPPE, SCHWARZ-HOCHGLANZ		FRONTFLAP HIGH POLISH B	568-90359992	
151	GEHÄUSEHAUBE GRAPHIT		COVER ASSY GRAPHITE	748-90348988	
151	GEHÄUSEHAUBE ARKTIS		COVER DVD ARCTIC	748-90349949	
151	GEHÄUSEHAUBE, STRATOS-METALLIC		COVER ASSY DVD LOEWE	748-90360929	
151	GEHÄUSEHAUBE, SCHWARZ-HOCHGLANZ		COVER ASSY DVD LOEWE	748-90360948	
151	GEHÄUSEHAUBE, ARKTIS (ASD1)	BEI VAL6011-BESTÜCKU	COVER TOP ARCTIC DVD L	748-90362981	
22	FENSTER INFRA & DISPLAY		DISPLAY WINDOW DVD LOE	666-90352996	
23	KLAPPE FÜR DVD-LAUFWERK		TRAY DOOR ASSY DVD LOE	568-90353933	
24	SCHARNIERTEIL AUSSENSEITE, GRAPHIT		HINGE, OUTSIDES DVD LOE	573-90351908	
24	SCHARNIERTEILE AUSSENSEITE, ARKTIS		HINGE, OUTSIDES DVD LOE	573-90351927	
24	SCHARNIERTEIL,AUSSENSEITE,STRATOS-MET.		HINGE, OUTSIDES DVD STR	573-90358998	
24	SCHARNIERTEIL,AUSSENSEITE,SCHWARZ-HOCHGL		HINGE, OUTSIDES DVD HIG	573-90359916	
25	SCHARNIERTEIL AUSSENSEITE, GRAPHIT		HINGE, OUTSIDES DVD LOE	573-90351908	
25	SCHARNIERTEILE AUSSENSEITE, ARKTIS		HINGE, OUTSIDES DVD LOE	573-90351927	
25	SCHARNIERTEIL,AUSSENSEITE,STRATOS-MET.		HINGE, OUTSIDES DVD STR	573-90358998	
25	SCHARNIERTEIL,AUSSENSEITE,SCHWARZ-HOCHGL		HINGE, OUTSIDES DVD HIG	573-90359916	
251	FUSS		FOOT SUPPORT DVD LOEW	783-90351959	
252	FUSS		FOOT SUPPORT DVD LOEW	783-90351959	
253	FUSS		FOOT SUPPORT DVD LOEW	783-90351959	
254	FUSS		FOOT SUPPORT DVD LOEW	783-90351959	
26	SCHARNIERTEIL, INNENSEITE, GRAPHIT		HINGE, INSIDES DVD LOEW	573-90352978	
26	SCHARNIERTEIL, INNENSEITE, ARKTIS		HINGE, INSIDES DVD LOEW	573-90352997	
26	SCHARNIERTEIL, INNENSEITE, STRATOS-MET.		HINGE, INSIDES DVD STRA	573-90359935	
26	SCHARNIERTEIL,INNENSEITE,SCHWARZ-HOCHGL.		HINGE, INSIDES DVD HIGH	573-90359954	
27	SCHARNIERTEIL, INNENSEITE, GRAPHIT		HINGE, INSIDES DVD LOEW	573-90352978	
27	SCHARNIERTEIL, INNENSEITE, ARKTIS		HINGE, INSIDES DVD LOEW	573-90352997	
27	SCHARNIERTEIL, INNENSEITE, STRATOS-MET.		HINGE, INSIDES DVD STRA	573-90359935	
27	SCHARNIERTEIL,INNENSEITE,SCHWARZ-HOCHGL.		HINGE, INSIDES DVD HIGH	573-90359954	
30	MAGNET		MAGNET DVD LOEWE	303-90351946	
31	MAGNET		MAGNET DVD LOEWE	303-90351946	
36	ZUGFEDER		TENSION SPRING	725-90351984	
37	ZUGFEDER		TENSION SPRING	725-90351984	
G0000	GEHÄUSEHAUBE, GRAPHIT	BEI VAL6011-BESTÜCKU	COVER TOP BLACK DVD LO	748-90362962	
G0000	GEHÄUSEHAUBE, ARKTIS (ASD1)		COVER TOP ARCTIC DVD L	748-90362981	
G0000	BODENPLATTE DVD (ASD1)	BEI VAL6011-BESTÜCKU	FRAME DVD (ASD1)	777-90362999	
H0000	LICHTLEITER		LIGHT CONDUCTOR	666-90351907	
H0000	KONTAKTFEDER	BEI VAL6011-BESTÜCKU	GROUND SPRING MERCUR	729-90360974	
H0000	DAEMPFUNGSEINHEIT FÜR BEDIENFELDKLAPPE		PLASTIC GEAR FOR FLAP	619-90360975	
	LAUFWERKSTEILE		**DRIVE MECHANISM**		
1	LOADER MONTAGERAHMEN,KPL.	ASD-1	GENEVA LP LOADER ASSY	549-90362946	
10	DÄMPFUNGSSTÜCK	ASD-1	TULE	406-90360996	
11	CD-SCHLITTEN	ASD-1	DRIVER	619-90361952	
12	CD-SCHLITTENMOTOR	ASD-1	TRAY-MOTOR ASSY	269-90361971	
2	LASER-ABTASTEINHEIT	ASD-1	LASER UNIT VAM6001/01	270-90362965	
3	AUFHÄNGUNG (GELB)	ASD-1	SUSPENSION (YELLOW)	406-90362984	
4	ANTRIEBSRIEMEN	ASD-1 (LOADER)	BELT	407-90362983	
4	AUFHÄNGUNG (GELB)	ASD-1 (VAL6011)	SUSPENSION (YELLOW)	406-90362984	
5	AUFHÄNGUNG (BLAU)	ASD-1	SUSPENSION (BLUE)	406-90360978	
6	AUFHÄNGUNG (BLAU)	ASD-1	SUSPENSION (BLUE)	406-90360978	
7	CD-FÜHRUNGSTELLER, KPL.	ASD-1	CLAMPER ASSY	612-90360997	
9	SCHALTER	ASD-1	SWITCH	310-90360977	
X0000	LPL. INCL. FLACHBANDLEITUNG, 8-POLIG	ASD-1 <--> 1106	PCS PCB FLEX ASSY, 8-PIN	396-90362945	
X0000	FLACHBANDLEITUNG 24-POLIG	ASD-1 <--> 1104	SLEDGE FLEX 24-PIN	165-90362964	

	SPULEN/LAUTSPRECHER		COILS,SPEAKERS	
5120	DR NETZDROSSEL		COIL FILTER CHOKE ASSY	298-90350939
5125	DR FERRITDROSSEL 100MHZ		BEAD, FERRITE 100MHZ	298-90350977
5131	TRAFO WANDLER		TRANSFORMER SWITCH M	490-90348952
5210	SPULE 6U8 M 7,7X9,5		COIL 6U8 M 7,7X9,5	297-90350901
5230	SPULE 10U K 4X9,8MM LAL04T100K		COIL 10U K 4X9,8MM LAL	297-90343903
5233	SPULE 10U K 4X9,8MM LAL04T100K		COIL 10U K 4X9,8MM LAL	297-90343903
5240	SPULE 1U M 4X9,8MM AXIAL		COIL 1U M 4X9,8MM AXI	297-90350958
5259	SPULE 10U K 4X9,8MM LAL04T100K		COIL 10U K 4X9,8MM LAL	297-90343903
5400	SPULE 100U		COIL 100UH	297-90348972
	ALLGEM.MECHAN.TEILE		**COMMON MECHANICAL PARTS**	
H0000	LICHTLEITER		LIGHT CONDUCTOR	666-90351907
H0000	TORX-SCHRAUBE ST ZN BK 2X8	LOADER<->ASD-BOARD	SCR PAN TORX ST ZN BK2X	440-90360993
	INTEGR.SCHALTUNGEN		**INTEGRATED CIRCUITS**	
7100	IC LM833D		IC LM833D	349-90348974
7101	IC ROM SLAVE DVD		IC ROM SLAVE DVD	349-90348992
7103	IC BA5938FM	ASD-1	IC BA5938FM	350-90360969
7104	IC LM833D	ASD-1	IC LM833D	349-90348974
7105	IC MC34072D	ASD-1	IC MC34072D	350-90361964
7109	IC AN78M09	ASD-1	IC AN78M09	350-90361983
7110	IC MC44603AP		IC ANA VOLT./CURR. REGU	349-90348989
7200	IC TCA0372DP1		IC TCA0372DP1	349-90348993
7201	IC KA431LZTA		IC ANA VOLT./CURR. REGU	349-90348951
7207	IC SAA7399HL/M2A	ASD-1	IC SAA7399HL/M2A	350-90362901
7207	IC SAA7399HL/M2A		IC SAA7399HL	350-90368954
7233	IC 7805 CT		INTEGRATED CIRCUIT	349-90270985
7237	IC KA431LZTA		IC ANA VOLT./CURR. REGU	349-90348951
7304	IC BA6856FP	ASD-1	IC BA6856FP	350-90362977
7305	IC SM STV6410AD (ST00) Y		IC SM STV6410AD (ST0	349-90350902
7310	IC CY7C199-15C	ASD-1	IC CY7C199-15C	350-90362996
7311	IC SAA7335HL/E/M2 /PHSE)Y	ASD-1	IC SAA7335HL/E/M2 /PHSE	350-90361927
7316	IC TDA4780-V4		IC TDA4780-V4	349-27676
7400	IC LD1117DT33		IC LD1117DT33	349-90348991
7401	IC UAD1328T		IC UAD1328T	349-90349909
7401	IC AM29LV160B	ASD-1	IC AM29LV160B	350-90361946
7403	IC MC33079D		IC ANA AMPLIFIER MC3307	349-90349947
7404	IC MT48LC1M16A1TG-6S	ASD-1	IC MT48LC1M16A1TG-6S	350-90361965
7405	IC MT48LC1M16A1TG-6S	ASD-1	IC MT48LC1M16A1TG-6S	350-90361965
7408	IC MC33079D		IC ANA AMPLIFIER MC3307	349-90349947
7413	IC 74HC4053N		IC 74HC4053N	349-90350979
7414	IC LM833D		IC LM833D	349-90348974
7503	IC STI5505AVC (ST00) Y	ASD-1	IC SM STI5505AVC (ST00)	350-90361915
7505	IC M24C32-WMN6/PROG		IC M24C32-WMN6/PROG	350-90362921
7600	IC PC74HCT14T	ASD-1	IC PC74HCT14T	350-90362959
7605	IC LD1117DT33	ASD-1	IC LD1117DT33	349-90348991
7616	IC MK2742-03S	ASD-1	IC MK2742-03S	350-90362997
	BUCHSEN/FASSUNGEN		**SOCKETS**	
0101	NETZ-EINBAUSTECKER		CONNECTOR, ELECTRICAL	321-90350919
101	NETZ-EINBAUSTECKER		CONNECTOR, ELECTRICAL	321-90350919
1100	STIFTKONTAKTLEISTE, 2-POLIG, RM 2,5MM		CONNECTOR, CON BM V 2	326-90372966
1101	STIFTKONTAKTLEISTE, 6-POLIG		CONNECTOR 6P	326-90371954
1104	KONTAKTLEISTE 24-POLIG	ASD-1	CON BM H 24P F 0.50 FFC S	323-90360991
1106	KONTAKTLEISTE 8-POLIG	ASD-1	CON BM H 8P F 1.00 FFC 0.3	323-90361909

POSNR. ITEMNMB	KURZTEXT DESCRIPTION 59502		BESTELLNR. LIST-PART-NMB	ENTF-DAT. LAST-DATE
1201	KOPFHÖRERBUCHSE GOLD PLATED		CONNECTOR, CABLE/WIRE	323-90350925
1300	KONTAKTLEISTE 22-POLIG (FFC)		CONNECTOR, PRINTED CIR	326-90349985
1301	KONTAKTLEISTE 16-POLIG		CONNECTOR,PRINTED CIR	326-90349966
1301	FEDERKONTAKTLEISTE 11-POLIG	ASD-1	CONN. 11P FEMALE	323-90361966
1303	BUCHSE 4-POLIG		CONNECTOR, PRINTED CIR	326-90350922
1400	CINCHBUCHSE 6-POLIG GOLD PLATED		CON BM CINCH H 6P F B	323-90348957
1402	CINCH-BUCHSE 3-POLIG GOLD PLATED		CON BM CINCH H 3P GOL	323-90350982
1405	CINCHBUCHSE 1-POLIG GOLD PLATED		CONNECTOR, ELECTRICAL	323-90350963
1603	FEDERKONTAKTLEISTE 22-POLIG	ASD-1	CON BM V 22P F 1.00 FFC 0.	323-90361985
1604	FEDERKONTAKTLEISTE 16-POLIG	ASD-1	CON BM V 16P F 1.00 FFC 0.	323-90362903
2210	STIFTKONTAKTLEISTE, 7-POLIG, RM 2,5MM		CONNECTOR, CON BM V 0	326-90372985
6400	OPTICAL-BUCHSE		CONNECTOR, FIBER-GLASS	323-90350978
9	SICHERUNGSHALTER		FUSE HOLDER 2P	602-90350957
	TRANSISTOREN		**TRANSISTORS**	
7100	TRANS BFS20	ASD-1	TRANS BFS20	344-90342987
7101	TRANS BC847B SOT23		TRANS BC847B SOT23	344-14974
7101	TRANS BFS20	ASD-1	TRANS BFS20	344-90342987
7102	TRANS BC847B SOT23		TRANS BC847B SOT23	344-14974
7103	TRANS BC847B SOT23		TRANS BC847B SOT23	344-14974
7106	TRANS BFS20	ASD-1	TRANS BFS20	344-90342987
7107	TRANS BC847B SOT23		TRANS BC847B SOT23	344-14974
7111	TRANS BC846B	ASD-1	TRANS BC846B	344-90341995
7112	TRANS BC846B	ASD-1	TRANS BC846B	344-90341995
7113	TRANS BC846B	ASD-1	TRANS BC846B	344-90341995
7114	TRANS BC846B	ASD-1	TRANS BC846B	344-90341995
7115	TRANS BC856B	ASD-1	TRANS BC856B	344-90341976
7116	TRANS BC846B	ASD-1	TRANS BC846B	344-90341995
7125	TRANS STP4NA60FI		TRANSISTOR, FET >=1W S	346-90349908
7203	TRANS BC856B	ASD-1	TRANS BC856B	344-90341976
7235	TRANS BC847		TRANS BC847	344-90349927
7236	TRANS STP16NE06		TRANS STP16NE06	346-90349946
7300	TRANS BC856B		TRANS BC856B	344-90341976
7301	TRANS BC847B SOT23		TRANS BC847B SOT23	344-14974
7302	TRANS BC847B SOT23		TRANS BC847B SOT23	344-14974
7303	TRANS BC847B SOT23		TRANS BC847B SOT23	344-14974
7304	TRANS LF80C		TRANS LF80C	346-90348954
7306	TRANS BC847B SOT23		TRANS BC847B SOT23	344-14974
7307	TRANS BC847B SOT23		TRANS BC847B SOT23	344-14974
7308	TRANS BC847B SOT23		TRANS BC847B SOT23	344-14974
7309	TRANS BC847B SOT23		TRANS BC847B SOT23	344-14974
7310	TRANS BC847B SOT23		TRANS BC847B SOT23	344-14974
7311	TRANS BC847B SOT23		TRANS BC847B SOT23	344-14974
7312	TRANS BC856B		TRANS BC856B	344-90341976
7312	TRANS BC856B	ASD-1	TRANS BC856B	344-90341976
7313	TRANS BC847B SOT23		TRANS BC847B SOT23	344-14974
7314	TRANS BC817-25		TRANS BC817-25	344-90348953
7315	TRANS BC817-25		TRANS BC817-25	344-90348953
7315	TRANS BC846B	ASD-1	TRANS BC846B	344-90341995
7320	TRANS BC847B SOT23		TRANS BC847B SOT23	344-14974
7321	TRANS BC817-25		TRANS BC817-25	344-90348953
7322	TRANS BC847B SOT23		TRANS BC847B SOT23	344-14974
7324	TRANS BC817-25		TRANS BC817-25	344-90348953
7325	TRANS BC847B SOT23		TRANS BC847B SOT23	344-14974
7326	TRANS BC856B		TRANS BC856B	344-90341976
7327	TRANS BC847B SOT23		TRANS BC847B SOT23	344-14974

POSNR. ITEMNMB	KURZTEXT DESCRIPTION	59502		BESTELLNR. LIST-PART-NMB	ENTF-DAT. LAST-DATE
7328	TRANS BC847B SOT23			TRANS BC847B SOT23	344-14974
7329	TRANS BC847B SOT23			TRANS BC847B SOT23	344-14974
7330	TRANS BC847B SOT23			TRANS BC847B SOT23	344-14974
7331	TRANS BC 547 B			TRANSISTOR BC 547 B	346-74983
7332	TRANS BC856B			TRANS BC856B	344-90341976
7333	TRANS BC 327-25			TRANSISTOR	346-78954
7334	TRANS BC847B SOT23			TRANS BC847B SOT23	344-14974
7335	TRANS BC847B SOT23			TRANS BC847B SOT23	344-14974
7336	TRANS BC817-25			TRANS BC817-25	344-90348953
7337	TRANS BC817-25			TRANS BC817-25	344-90348953
7402	TRANS BC817-25			TRANS BC817-25	344-90348953
7404	TRANS BC817-25			TRANS BC817-25	344-90348953
7405	TRANS BC817-25			TRANS BC817-25	344-90348953
7406	TRANS BC817-25			TRANS BC817-25	344-90348953
7407	TRANS BC817-25			TRANS BC817-25	344-90348953
7409	TRANS BC817-25			TRANS BC817-25	344-90348953
7410	TRANS BC817-25			TRANS BC817-25	344-90348953
7411	TRANS BC817-25			TRANS BC817-25	344-90348953
7412	TRANS BC817-25			TRANS BC817-25	344-90348953
7415	TRANS BC817-25			TRANS BC817-25	344-90348953
7416	TRANS BC817-25			TRANS BC817-25	344-90348953
7419	TRANS BC817-25			TRANS BC817-25	344-90348953
7420	TRANS BC817-25			TRANS BC817-25	344-90348953
7421	TRANS BC817-25			TRANS BC817-25	344-90348953
7422	TRANS BC 557 B			TRANSISTOR	346-74878
7423	TRANS BC847B SOT23			TRANS BC847B SOT23	344-14974
7501	TRANS BC846B		ASD-1	TRANS BC846B	344-90341995
7604	TRANS BC846B		ASD-1	TRANS BC846B	344-90341995
7607	TRANS BC846B		ASD-1	TRANS BC846B	344-90341995
7608	TRANS BC856B		ASD-1	TRANS BC856B	344-90341976
7609	TRANS BC856B		ASD-1	TRANS BC856B	344-90341976
7610	TRANS BC846B		ASD-1	TRANS BC846B	344-90341995
7612	TRANS BC846B		ASD-1	TRANS BC846B	344-90341995
7613	TRANS BC846B		ASD-1	TRANS BC846B	344-90341995
7614	TRANS BC846B		ASD-1	TRANS BC846B	344-90341995
7615	TRANS BC846B		ASD-1	TRANS BC846B	344-90341995
7617	TRANS BC846B		ASD-1	TRANS BC846B	344-90341995
7618	TRANS BC846B		ASD-1	TRANS BC846B	344-90341995
7620	TRANS BC856B		ASD-1	TRANS BC856B	344-90341976
7621	TRANS BC817-25		ASD-1	TRANS BC817-25	344-90348953
	DIODEN			**DIODES**	
1150	DISPLAY EINHEIT			FTD DISPLAY	353-90349931
6101	DIODE BZX284-C3V9			DIODE BZX284-C3V9	352-90348955
6110	DIODE BYD33J			DIODE BYD33J	352-90341959
6111	DIODE BYD33J			DIODE BYD33J	352-90341959
6114	DIODE BYD33D			DIODE BYD33D	352-90342915
6120	DIODE SINB80			DIODE, BRIDGE SINB80	352-90348971
6129	DIODE ZD 24V BZX84-C24			DIODE, REFERENCE BZX8	352-90350938
6200	DIODE BAS316 SOD323 LV030		ASD-1	DIODE BAS316 SOD323 LV	351-27952
6210	DIODE PBYR1080			DIODE, POWER RECTIFIER	352-90349965
6230	DIODE PBYR1080			DIODE, POWER RECTIFIER	352-90349965
6250	DIODE BYD33D			DIODE BYD33D	352-90342915
6260	DIODE BYD33J			DIODE BYD33J	352-90341959
6300	DIODE ZD 5V6 BZX284-C5V6			DIODE, REFERENCE BZX2	352-90350959
6301	DIODE BAS216 SOD110			DIODE BAS216 SOD110	351-27279

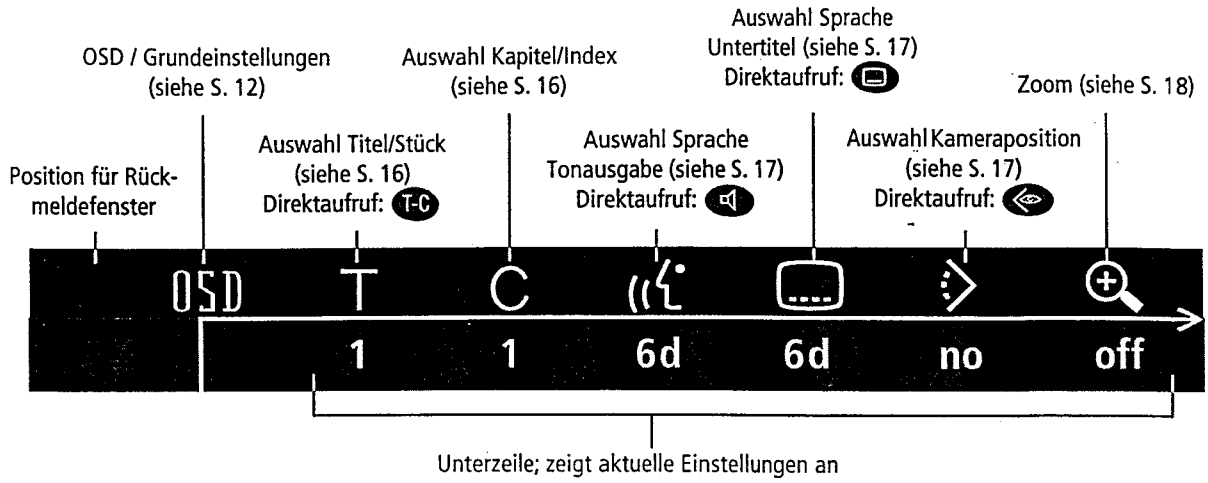
POSNR. ITEMNMB	KURZTEXT DESCRIPTION	59502		BESTELLNR. LIST-PART-NMB	ENTF-DAT. LAST-DATE
6301	DIODE S1D		ASD-1	DIODE S1D	351-90359975
6302	DIODE BAS216 SOD110			DIODE BAS216 SOD110	351-27279
6302	DIODE S1D		ASD-1	DIODE S1D	351-90359975
6303	DIODE BAS216 SOD110			DIODE BAS216 SOD110	351-27279
6303	DIODE S1D		ASD-1	DIODE S1D	351-90359975
6600	DIODE 1PS76SB10		ASD-1	DIODE 1PS76SB10	351-90359994
7200	PHOTO-COUPLER CQY 80 NG			INTEGRATED CIRCUIT	353-90277903
D0000	DIODE BZX284-C3V9			DIODE BZX284-C3V9	352-90348955
	QUARZE/FILTER			**QUARTZES**	
1104	QUARZ 8,0 MHZ CSTS*MG03			X - TAL 8MHZ CSTS*MG	385-90349969
1205	QUARZ 8,467 MHZ CSTCC			RES CER SM 8M467 CSTCC	385-90361928
1300	QUARZ 6,0 MHZ CSTCC			RES CER SM 6MHZ CSTCC6	385-90361947
7504	QUARZ 27,0 MHZ 120P FX0-31FT		ASD-1	QUARZ 27,0 MHZ 120	385-90362902
	SCHALTER			**SWITCHES**	
1102	TASTSCHALTER			SWITCH, PUSH BUTTON	467-90350942
1102	TASTSCHALTER		OPEN/CLOSE	SWITCH, PUSH BUTTON	467-90350942
1103	TASTSCHALTER			SWITCH, PUSH BUTTON	467-90350942
1103	TASTSCHALTER			SWITCH, PUSH BUTTON	467-90350942
	POTENTIOMETER			**POTENTIOMETERS**	
3201	POT 10KX2 20% 0,025W			RESISTOR, VARIAB 10KX2 2	375-90350961
	SICHERUNGEN			**FUSES**	
1120	SICH. 2500MA T 250V 5X20 L LV380-1 A.3			FUSE 2500MA T 250V 5X20	380-45568
1125	FUNKENSTRECKE			SPARK GAP	380-90350976
	KONDENSATOREN			**CAPACITORS**	
2121	ELKO 100U M 400V 22X35			CAP EL 100U M 400V 2	360-90349983
2127	KOND 47P J 1KV			CAP 47P J 1KV	357-90349926
2131	KOND 2N2 M 250V			CAP 2N2 M 250V	357-90349945
2251	KOND 1N K 1KV SMD			CAPACITOR, CERAMIC SMD	356-90348994
	WIDERSTÄNDE			**RESISTORS**	
3120	WID 1MA/423V 800V			RES 1MA/423V	371-90349964
3122	WID 2R7 3W AC03 WW			RES 2R7 3W AC03	368-90349907
R0000	WID 10K F 0805 LV364-1 LV030			RES 10K F 0805 LV3	364-23063
R0000	WIDCH 2K7 F 0W1 0805			RESCH 2K7 F 0W1 0805	364-90373905
R0000	WIDCH 100K F 0W1			RESCH 100K F 0W1	364-90373961
R0000	WIDCH 12R J 1206 SI		SI	RESCH 12R J 1206 FUS	364-90375911
	GEBER-ERSATZTEILE			**SPARE PARTS FOR TRANSMITTER**	
20	BATTERIEFEDER VERGOLDET			BATTERY SPRING, TINNED	739-87217002
20	GEHAEUSE-OBERTEIL CONTROL 350 DVD ARKTIS			REMOTE CONTROL COVER	756-87265005
25	LICHTLEITER			LENS	666-87274001
30	574 KONTAKTMATTE CONTR.350			574 KONTAKTMATTE CON	309-87267003
70	GEHAEUSE-UNTERTEIL ARKTIS			COVER	756-87264001
80	BATTERIEFEDER 2-FACH			BATTERY SPRING, 2PIECE	739-85279001
90	BATTERIEDECKEL ARKTIS			COVER	756-87215001
D 104	DIODE BAS216 SOD110			DIODE BAS216 SOD110	351-27279
D 105	DIODE BAS216 SOD110			DIODE BAS216 SOD110	351-27279 13.03.2002
D 108	DIODE BAS216 SOD110			DIODE BAS216 SOD110	351-27279
D 117	LED LG T679 SMD			LED LG T679	353-27021
D 118	LED LG T679 SMD			LED LG T679	353-27021
D 121	DIODE LED F.D.SFH 4515			LED F.D.SFH 4515	353-27024
I 101	ICMOS PCA84C122AT-231			ICMOS PCA84C122AT-231	350-27787 13.03.2002

POSNR. ITEMNMB	KURZTEXT DESCRIPTION	59502	BESTELLNR. LIST-PART-NMB	ENTF-DAT. LAST-DATE
I 101	ICMOS HT48CA6 24SOP M-CONTR. V1.0 LV030	ICMOS HT48CA6 24SOP M-C	350-29859001	
Q 121	TRANS GENERAL SOT23 PNP 45V 500MA	TRANS GENERAL SOT23 P	344-25509	13.03.2002
Q 122	TRANS GENERAL SOT23 PNP 45V 500MA	TRANS GENERAL SOT23 P	344-25509	
X 111	PIEZO 4,300000 MHZ MELF RESON LV030	PIEZO 4,300000 MHZ MELF	386-27022	13.03.2002
X 111	RESON 3,580000 MHZ SMD MIT KOND.	RESON 3,580000 MHZ SMD	386-29931	

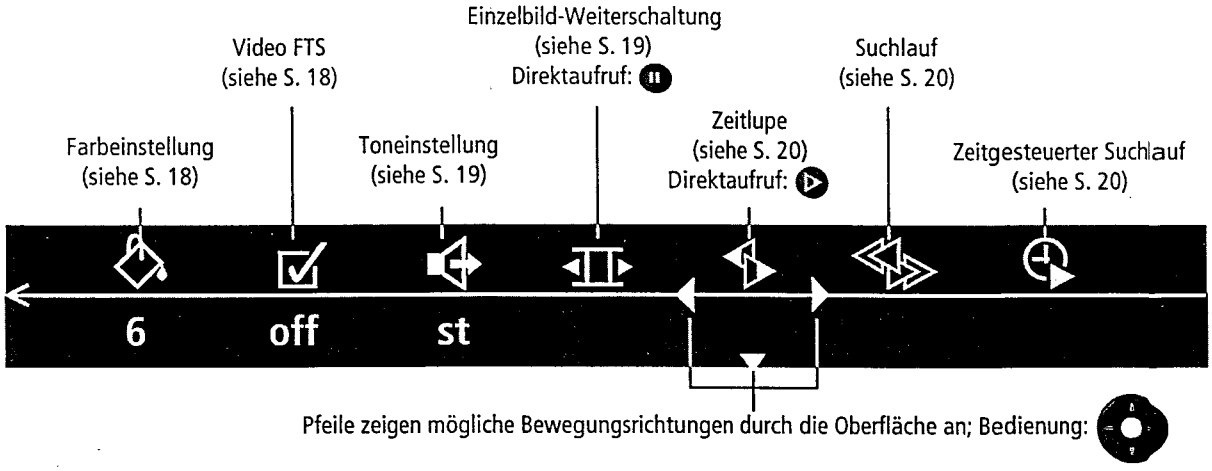
enutzeroberfläche

enüleiste Teil 1

n- und Ausblenden der Menüleiste: OSD ; siehe auch S. 16



eiste Teil 2


Einzelbild-Weiterschaltung (siehe S. 19) Direktaufruf:
Video FTS (siehe S. 18)
Suchlauf (siehe S. 20)
Zeitlupe (siehe S. 20) Direktaufruf:
Farbeinstellung (siehe S. 18)
Toneinstellung (siehe S. 19)
Zeitgesteuerter Suchlauf (siehe S. 20)
6
off
st
Pfeile zeigen mögliche Bewegungsrichtungen durch die Oberfläche an; Bedienung:

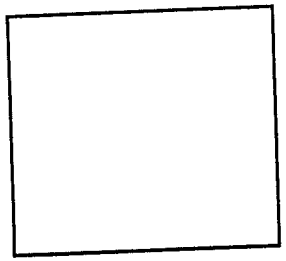
ückmeldefenster

les wiederholen | Stück wiederholen | Kapitel wiederholen | Kameraposition | Kindersicherung eingeschaltet | Für Kinder geeignet | Fortsetzung | Aktion unzulässig

DVD-Player Xemix + Auro

DVD - Bildformate

Formatangaben auf DVD-Covern mit Darstellung auf einem 4 : 3 TV.



Vollbild
1,33 : 1

Vollbild-Format mit Seitenverhältnis eines 4:3 TV-Gerätes.

Widescreen
1,66 : 1

Sogenanntes europäisches, nicht-anamorphes Signal mit schmalen Balken oben und unten.

16:9 Widescreen
1,78 : 1

Zusatzinformation 16:9 bedeutet: anamorphes Bild mit voller Auflösung.

16:9 Widescreen
1,85 : 1

Format der meisten US-Kinofilme. Auf 16:9 TV meist ohne oder nur mit schmalen Balken.

16:9 Widescreen
2,35 : 1

4:3 TV zeigen dieses Format mit extrem dicken Balken. Dank anamorpher Speicherung feine Bildauflösung.

Technische Daten - DVD Player

	Auro	Xemix
Allgemeines		
Disc-Formate	DVD-Video, Audio-CD, Video CD CD-R, CD-RW (Audio)	DVD-Video, Audio-CD, Video CD CD-R, CD-RW (Audio)
Bild		
Norm	PAL/NTSC	PAL/NTSC
Horizontale Auflösung (DVD)	> 500 TV-Zeilen	> 500 TV-Zeilen
Bildformat	16:9, Cinema, Panorama, 4:3	16:9, Cinema, Panorama, 4:3
digitale Bildverarbeitung	10 bit	10 bit
Ton		
Standards:		
DTS	x	x
Dolby Digital	x	x
DolbyPro LogicDownmix from Multichannel sound	x*	x*
MPEG I/MPEG II	x	x
PCM	x	x
digitale Audiosignalverarbeitung	24 bit	24 bit
Signal-/Rauschabstand	110 dB	110 dB
Dynamikumfang	100 dB	100 dB
Kanaltrennung (1 kHz)	115 dB	115 dB
Ausstattung		
Dual Laser	x	x
integrierter Digital Surround / MPEG II Decoder	x	x
Noisegenerator	x	x
virtuell 3-D Sound	x	x
Digtal Link	x	x
Sonderfunktionen		
Blickwinkel (Kameraposition)*	max. 5	max. 5
Synchronsparche / Untertitel*	max. 8 / max. 32	max. 8 / max. 32
Favorite Track Selection	x	x
Persönlilche Farbeinstellung	x	x
Resume (5 discs) after stop/standby	x	x
Kindersicherung	Player / Disk	Player / Disk
On Screen Display (OSD) in Sprachen	D-GB-I-F-E-NL-S	D-GB-I-F-E-NL-S
Wiedergabefunktionen		
Kapitel-, Titelsprung	x	x
Repeat	Kapitel, Titel, DVD/CD	Kapitel, Titel, DVD/CD
perfektes Standbild	x	x
Einzelbildfortschaltung	x	x

variable Zeitlupe	Rückwärts -1 - 1/2 -1/4 - 1/8, Vorwärts 1/8, 1/4, 1/2, 1	Rückwärts -1 - 1/2 -1/4 - 1/8, Vorwärts 1/8, 1/4, 1/2, 1
variabler Zeitraffer	Rückwärts -32, -8, -4.Vorwärts 4, 8, 32	Rückwärts -32, -8, -4.Vorwärts 4, 8, 32
Anschlüsse		
Euro 1 / Euro 2 - RGB	x/x	x/x
FBAS-Video Cinch	vergoldet	vernickelt
S-Video	x	x
Audio-Stereo	vergoldet	vernickelt
5.1 Kanal Ausgang	vergoldet	vernickelt
Digitalausgang koaxial	vergoldet	vernickelt
Digitalausgang optisch	vergoldet	vernickelt
Front-Kopfhörer (6,3mm)	x	x
Aufrüstsätze/Zubehör	-	
Scart-Cabel	1,5 m	1,5 m
Video-/Audio Cinch Kabel	1,5 m	1,5 m
Digital Audio Kabel	1,5 m	-
Sonstiges		
Netzspannung/Frequenz	230 V, 50/60 Hz	230 V, 50/60 Hz
Leistungsaufnahme	20	20
Leistungsaufnahme im Stand-by Betrieb	10W /min. 5W	10W /min. 5W
Empfohlene Umgebungstemperatur (min./max.)	+ 5° bis +40°	+ 5° bis +40°
Abmessungen in cm	43,5 x 8,8 x 31,5	43,5 x 8,8 x 31,0
Farbausführung	graphit, arktis, hochglanz-schwarz, stratos-metallic	graphit, arktis
Gewicht	4 kg	4 kg

*Abhängig von DVD-Software

FAQ

Was bedeutet.... Fragen - Antworten

Was bedeutet eigentlich.....

525/60	Fernseh-Abtastsystem in den NTSC-Ländern. 525 horizontale Zeilen und 60 Halbbilder pro Sekunde.
625/50	Fernseh-Abtastsystem in den PAL- und SECAM-Ländern. 625 horizontale Zeilen und 50 Halbbilder pro Sekunde.
ADC	Analog-to-Digital Converter. Wandelt analoge Signale in digitale Datenströme um.
AC-3	Ursprüngliche Bezeichnung von Dolby Digital
Anamorphotisch	Anamorphotisch komprimiert (horizontal zusammengestaucht) sind Breitbild-Videoprogramme, die auf Breitbild-Fernsehern die optimale Vertikalauflösung ergeben. Zum Abspielen auf normalen 4:3 Fernsehern werden oben und unten schwarze Horizontalbalken eingefügt.
ANSI	American National Standards Institute
Area Code	Auch Ländercode oder Country Code genannt. Erlaubt es den Produzenten, die Abspielbarkeit einer DVD-Video auf bestimmte Länder zu begrenzen.
Aspect Ratio	TV-Seitenverhältnis. Beim Standard-TV verhalten sich Breite und Höhe zueinander im Verhältnis 4:3 bzw. 1,33:1, bei Breitbild-TV sind es 16:9 bzw. 1,78:1
Bit	Binary Digit. Kleinste Informationseinheit in der Digitaltechnik.
Byte	Datenpaket, bestehend aus 8 Bits.
CD	Compact Disc. Optischer Datenträger.
Channel	Kanal, in der Regel ein Teil einer Audioinformation
CGMS	Copy Generation Management System. Code auf einer DVD, der darüber bestimmt, ob die DVD kopiert werden kann oder nicht.
Codec	Coder/Decoder. Hard- oder Software zum Encodieren und Decodieren von Signalen
Composite Video	Analoges Videosignal, bei dem Helligkeits-, Farb- und Synchronisationsinformationen zu einem einzigen Signal zusammengefasst sind.
CPU	Central Processing Unit. Herzstück eines Computers.
CSS	Content Scrambling System. Datenverschlüsselung, die es verunmöglicht, eine digitale Kopie von einer DVD zu machen.
DAC	Digital-to-Analog Converter. Wandelt digitale Datenströme in Analogsignale um.
DAD	Digital Audio Disc, nicht geschützte Bezeichnung, die gelegentlich auf DVDs zu finden ist, die kaum Videoinformationen enthalten, sondern sich auf hochwertige Musikübertragung konzentrieren.
DAT	Digital Audio Tape
DD	Dolby Digital. System zur datenreduzierten Codierung von Audio-Signalen. Kann1 - 5+1 Kanäle enthalten. Das mit Abstand am meisten verwendete Audio-System auf DVDs.
Direct Show	Von Microsoft entwickelter Software-Standard zum Abspielen von DVD-Video in Computern mit Windows Betriebssystem
Dolby Pro Logic	Technik (oder Chip) zum besseren Extrahieren von Surround- und Center-Kanal Informationen aus einem Dolby-Surround codierten Stereosignal.
Dolby Surround	Aus der Analog-Zeit stammendes Verfahren zur Verschachtelung von Surround-Sound- und Center-Kanal Informationen in ein Stereo Audiosignal.
DSD	Direct Stream Digital. System zur Codierung von Audiosignalen ohne Datenreduktion. Ist auf DVD-Audio nur als Ergänzung zu anderen Audio-Systemen erlaubt.

DS-DL	Double Sided - Dual Layer. Doppelseitig bespielte DVD mit je zwei Informationsschichten. (DVD-18)
DS-SL	Double Sided - Single Layer. Doppelseitig bespielte DVD mit je einer Informationsschicht. (DVD-10)
DTS	Digital Theatre Sound. Von Lucasfilm entwickeltes System zur datenredizierten Codierung von Audio-Signalen. Ist auf DVDs nur als Ergänzung zun anderen Audio-Systemen erlaubt.
DV	Digital Video. Digitales Videoformat mit Magnetbandkassette.
DVD	Digital Versatile Disc.
DVD-A	DVD-Audio. Mit Audioprogrammen bespielte DVD, die nicht gelöscht oder überschrieben werden kann.
DVD-R	DVD Recordable. DVD, die ein einziges Mal bespielt werden kann.
DVD-RAM	DVD Random Access Memory.DVD, die immer wieder neu bespielt werden kann. Kann auf konventionellen DVD-Playern nicht abgespielt werden.
DVD-ROM	DVD Read Only Memory. Mit Daten bespielte DVD, die nicht gelöscht oder überschrieben werden kann.
DVD+RW	DVD plus ReWritable. DVD, die immer wieder bespielt werden kann. Kann auch auf konventionellen DVD-Playern abgespielt werden.
DVD-V	DVD Video. Mit Videoprogrammen bespielte DVD; die nicht gelöscht oder überschrieben werden kann.
FF	Full Frame. Formatfüllendes Bild auf einem Fernseher mit dem Standard Seitenverhältnis von 4:3.
Firewire	Offizieller Name: IEEE 1394. Standard zum Austausch von digitalen Daten zwischen verschiedenen Geräten, auch Audio- und Videogeräten.
FPS	Frames per Second. Bilder pro Sekunde.
GB	Gigabyte. Eine Milliarde Bytes.
Komponenten-Video	Video-Information in Form getrennter Signale entweder für Rot, Grün und Blau oder für die Komponenten Y, R-Y und B-Y in digitaler oder analoger Form.
Letterbox	Damit die gesamte Breite eines Breitbildprogrammes auf einem Standard-Fernseher gezeigt werden kann, werden oben und unten schwarze horizontale Balken eingefügt, sodass das eigentliche Bild im Extremfall schmal wie ein Briefkastenschlitz werden kann.
Macrovision	Störimpulse, die einem Videosignal beigemischt werden und die bewirken, dass eine Aufnahme dieses Videosignales auf einem Videorecorder stark gestört wird.
MLP	Meridian Lossless Packing. Verlustfreies Daten-Kompressionsverfahren, das die maximale Spieldauer von PCM-Aufzwichnungen auf DVD-Audio um bis zu 55% verlängert.
MPEG	Motion Pictures Experts Group. Internationales Komitee, das unter anderem die MPEG-Familie von Audio- und Videokompressions-Standards festgelegt hat.
MPEG-1	Bei Video: System zur datenreduzierten Codierung mit niedriger Bildqualität. Verwendet bei CD-I und Video-CD. Bei Audio: System zur datenreduzierten Codierung von bis zu 2 Kanälen.
MPEG-2	Bei Video: System zur datenreduzierten Codierung mit hoher Bildqualität. Verwendet bei DVD. Bei Audio: System zur datenreduzierten Codierung von bis zu 7+1 Kanälen.
Multiangle	Auf manchen DVDs angebotene Möglichkeit, ein- und dieselbe Szene nach Wunsch aus verschiedenen Blickwinkeln zu sehen.
Multichannel	Mehrkanaligkeit.
NTSC	National Television Systems Committee. Fernseh-Standard in den USA und in Japan.
PAL	Phase Alternate Line. Fernseh-Standard in Europa.
PCM	Pulse Code Modulation. Audio Standard ohne Datenreduktion.
P/S	Pan-and-Scan. Breitbild-DVDs können so programmiert werden, dass beim Abspielen auf einem Standard 4:3 Fernseher das Originalbild nicht einfach links und rechts abgeschnitten, sondern immer der tatsächlich wichtigste Ausschnitt gezeigt wird.
RGB	Video-Information in Form von getrennten Signalen für Rot, Grün und Blau.
RS-DL	Reverse Spiral Dual Layer. DVD, deren Programm auf zwei Schichten verteilt ist (DVD-9). Die Abtastung beginnt von innen nach aussen, an einer vorprogrammierten

	Stelle springt der Laser unmerklich auf die zweite Informationsschicht, die von aussen nach innen verläuft.
SMPTE	Society of Motion Picture and Television Engineers. Internationale Organisation für Forschung und Standardisierung.
SS-DL	Single Side - Dual Layer. Einseitig bespielte DVD mit zwei Informationsschichten. (DVD-9)
SS-SL	Single Side - Single Layer. Einseitig bespielte DVD mit einer Informationsschicht. (DVD-5)
S-Video	Auch Y/C oder (nach dem Buchsenhersteller) Hosiden genannt. Standard zum Austausch von Videosignalen zwischen Geräten. Dabei werden die Informationen für Helligkeit (Y) und Farbe (C) separat transportiert, damit sie einander nicht beeinträchtigen können.
THX	Tom Holman Experiment. Empfehlungen für die technische Uebertragungsqualität von Audio-Wiedergabeanlagen.
UDF-Bridge	Einheitliches Datenformat für Audio, Video und Daten auf der DVD.
Watermark	Unhörbares Identifikationssignal in einer DVD-A, das die Herkunft einer Aufnahme auch nach einer Übertragung in niedrigster Qualität noch zweifelsfrei feststellen lässt.
Widescreen	Breitbild.